

Final

Range Environmental Assessment

Test Area C-52 Complex

Eglin Air Force Base, Florida



Contract No. W91278-12-D-0026

Task Order 0011

RCS 13-052

Submitted to:

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Environmental Planning Office

Eglin Air Force Base, Florida

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Final
FINDING OF NO SIGNIFICANT IMPACT
For
TEST AREA C-52 COMPLEX, EGLIN AIR FORCE BASE, FLORIDA
RANGE ENVIRONMENTAL ASSESSMENT

Contract No. W91278-12-D-0026
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This finding, and the analysis upon which it is based, was prepared pursuant to the President's Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA) and its implementing regulations as promulgated at 40 Code of Federal Regulations (CFR) Part 1500 (40 CFR 1500-1508) plus:

- U.S. Air Force *Environmental Impact Analysis Process* as promulgated at 32 CFR Part 989

The Department of the Air Force has conducted a Range Environmental Assessment (REA) of the potential environmental consequences of Test Area C-52 Complex operations at Eglin Air Force Base (AFB), Florida. That July 2014 REA is hereby incorporated by reference into this finding.

Purpose and Need

The purpose of the Proposed Action is to allow quick and efficient processing of mission programs that request access to the C-52 Complex during routine and crisis situations. The Proposed Action is needed to update/validate the current approval process for routine military users of the C-52 Complex, and to provide a quick response to priority needs during war or other significant military involvement. Since the last NEPA analysis of C-52 Complex operations, which was conducted in 1999, C-52 Complex operations have changed as a result of engagement in wars, development of new technologies, and changes in associated Eglin AFB mission activities. By updating the environmental impact analysis for C-52 Complex operations to address mission and other changes that have occurred since the last analysis, the attached REA allows more streamlined and accurate environmental review/approval of C-52 Complex mission requests.

Proposed Action and Alternatives

The REA analyzed the following two alternatives:

- Alternative 1: (No Action Alternative): Maintain C-52 Complex operations at the baseline level
- Alternative 2: Implement C-52 Complex operations at a mission surge level

The baseline level under Alternative 1 is defined by current and projected near-term C-52 Complex mission activity and associated munitions/pyrotechnics expendables. Mission surge C-52 Complex operations under Alternative 2 are those anticipated to occur during wartime or other significant military involvement. The mission surge level under Alternative 2 is defined as a 200 percent increase in the baseline mission activity and expendables analyzed under Alternative 1, except those associated with Explosive Ordnance Disposal (EOD) operations and Smoke Week. Alternative 2 is the Air Force's Preferred Alternative.

Environmental Consequences

Based on the findings of the attached REA, Alternatives 1 and 2 would each have no effect or impacts that range from minor to moderate in magnitude on air quality, noise, soils, water resources, biological resources, cultural resources, safety, airspace, geology, topography, hazardous materials/wastes, land use, socioeconomics, utilities, solid waste and transportation. The impacts that each alternative would have on these resources would not be significant. Each alternative would not have disproportionately high or adverse human health or environmental effects on minority or low-income populations, and would not result in environmental health or safety risks to children. When added to past, present and reasonably foreseeable actions, each alternative would not have significantly adverse cumulative impacts on any resource. Compensatory mitigation is not required for any activity within the scope of the Proposed Action addressed in the REA. The REA identifies management actions that focus on avoidance and minimization of impacts to the resources analyzed in detail.

Public Review and Interagency Coordination

A public notice placed in the *Northwest Florida Daily News* of Fort Walton Beach, Florida and *Bay Beacon* of Niceville, Florida announced the 30-day public review period. The draft REA was made available for public review on the Eglin AFB public website. The Air Force consulted directly with the U.S. Fish and Wildlife Service on the Proposed Action. The Florida State Clearinghouse coordinated state and local review of the draft REA and determination of federal consistency with the Florida Coastal Management Program. The final REA includes all documentation of public and agency consultation, and addresses all received comments.

Finding of No Significant Impact

Based on my review of the facts and analysis in the attached REA, I conclude that Alternative 1 or 2 would not have a significant impact on the natural or human environment either by itself or considering cumulative impacts. Therefore, either of these alternatives may be considered for implementation. The requirements of the NEPA, the President's CEQ, and 32 CFR Part 989 have been fulfilled, and an Environmental Impact Statement is not required and will not be prepared.



SHAWN D. MOORE, Colonel, USAF
Commander, 96th Civil Engineer Group

31 OCT 14

Date

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Acronyms and Abbreviations

7 SFG	7th Special Forces Group (Airborne)
9 SOS	9th Special Operations Squadron
96 CEG	96th Civil Engineer Group
96 CEG/CEIEA	96th Civil Engineer Group/Environmental Planning Office
96 CEG/CEIEA	96th Civil Engineer Group/Natural Resources Office
96 RANSS	96th Range Support Squadron
96 CEG/CEIEC	96th Civil Engineer Group/Compliance
96 TW	96th Test Wing
AFB	Air Force Base
AFI	Air Force Instruction
AFMC	Air Force Materiel Command
AFSOC	Air Force Special Operations Command
ALARNG	Alabama Army National Guard
ASL	above sea level
AvFID	Aviation Foreign Internal Defense
BMP	best management practice
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CATEX	Categorical Exclusion
CBA	closed box assessment
CDNL	C-weighted day-night average sound level
CE-EOD	Civil Engineering-Explosive Ordnance Disposal
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalent
COMPTUEX	Composite Training Unit Exercise (formerly COM2EX)
CZMA	Coastal Zone Management Act
dB	decibel
dBA	A-weighted decibel
dBc	C-weighted decibel
dBp	peak sound pressure level
DNL	day-night average sound level
DoD	Department of Defense
EA	Environmental Assessment
EAFBI	Eglin Air Force Base Instruction
EBD	Environmental Baseline Document
ECM	Electronic Countermeasures
ECTRC	Emerald Coast Technology and Research Center
EGTTR	Eglin Gulf Test and Training Range
EIS	Environmental Impact Statement
EO	Executive Order
EOD	Explosive Ordnance Disposal
ESA	Endangered Species Act

ETTC	Eglin Test and Training Complex
F.A.C.	Florida Administrative Code
FCMP	Florida Coastal Management Program
FDEP	Florida Department of Environmental Protection
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FNAI	Florida Natural Areas Inventory
ft	feet
FWC	Florida Fish and Wildlife Conservation Commission
FY	Fiscal Year
GHG	greenhouse gas
GBU	Guided Bomb Unit
HAP	hazardous air pollutant
Hwy	Highway
Hz	hertz
ICRMP	Integrated Cultural Resources Management Plan
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
INRMP	Integrated Natural Resources Management Plan
JSF	Joint Strike Fighter
lb	pound
MHPI	Military Housing Privatization Initiative
mi ²	square miles
MILCON	Military Construction
MLRS	Multiple Launch Rocket System
mm	millimeter
MRTFB	Major Range Test Facilities Base
msl	mean sea level
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAPS	Noise Assessment and Prediction System
NEI	National Emissions Inventory
NEPA	National Environmental Policy Act
NEW	Net Explosive Weight
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NOA	Notice of Availability
NRHP	National Register of Historic Places
ONA	Outstanding Natural Area
OSHA	Occupational Safety and Health Administration
PEA	Programmatic Environmental Assessment
PM	particulate matter
RCW	red-cockaded woodpecker
REA	Range Environmental Assessment

ROD	Record of Decision
ROI	Region of Influence
RSL	Regional Screening Level
SBS	Significant Botanical Site
SEL	sound exposure level
SESOIL	Seasonal Soil Compartment Model
SHPO	State Historic Preservation Office
SO ₂	sulfur dioxide
SO _x	sulfur oxides
SSB	Soil Screening Benchmark
SSC	Species of Special Concern
STEF	Seeker Test and Evaluation Facility
TA	Test Area
UAS	Unmanned Aerial System
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UXO	unexploded ordnance

Purpose of and Need for the Proposed Action

1.1 Introduction

Eglin Air Force Base (AFB), located in northwestern Florida, is home of the Eglin Test and Training Complex (ETTC) and is one of ten Air Force Materiel Command (AFMC) host bases. As a critical part of the Major Range Test Facilities Base (MRTFB), Eglin AFB's primary functions are to support research, development, testing, and evaluation of conventional weapons and electronic systems and to support multi-service air and ground training of operational units. The Test Area (TA) C-52 Complex is Eglin AFB's largest test area, encompassing approximately 28.5 square miles (mi²) of land in Walton County, Florida. The C-52 Complex supports a wide range of testing, training, and Explosive Ordnance Disposal (EOD) operations.

The Air Force proposes to authorize and implement a new level of activity for TA C-52 Complex operations at Eglin AFB and has prepared this Range Environmental Assessment (REA) for this Proposed Action. This REA analyzes the potential environmental impacts of all current and anticipated C-52 Complex operations as well as the potential impacts of a mission surge in C-52 Complex operations expected to occur during wartime or other significant military involvement.

This REA is an update of the 1999 TA C-52 Complex Programmatic Environmental Assessment (PEA) (U.S. Air Force, 1999). It has been prepared in accordance with the National Environmental Policy Act ([NEPA], Title 42, U.S. Code, Section 4321 et seq.), Air Force implementing regulations (32 Code of Federal Regulations [CFR] Part 989), and Department of Defense (DoD) directives.

1.2 Purpose and Need

The purpose of the Proposed Action is to allow quick and efficient processing of mission programs that request access to the TA C-52 Complex during routine and crisis situations. The Proposed Action is needed to update/validate the current approval process for routine military users of the C-52 Complex, and to provide a quick response to priority needs during war or other significant military involvement.

The potential environmental impacts of C-52 Complex operations were last analyzed in the 1999 TA C-52 PEA (U.S. Air Force, 1999). Since then, changes have occurred that warrant updated environmental impact analysis of C-52 Complex operations, including the following:

- C-52 Complex operations have changed as a result of engagement in wars, development of new technologies, and changes in associated Eglin AFB mission activities
- The federal and/or state protection statuses of certain plant and animal species have changed
- New regulations have been imposed on Eglin regarding the management of protected species
- Additional cultural resources have been discovered on Eglin AFB
- The populations of residential communities near Eglin AFB have increased
- Federal, State, and Air Force regulations have changed

Currently, when approval of a new mission action at Eglin AFB is requested, it may be categorically excluded from detailed environmental analysis if it is similar to a mission that has been previously assessed and if that assessment resulted in a Finding of No Significant Impact (FONSI). This Categorical Exclusion (CATEX) process is in accordance with NEPA and associated DoD and Air Force regulations. By updating the environmental impact analysis for C-52 Complex operations to address mission and other changes that have occurred since the last analysis, this REA will allow more streamlined and accurate environmental review/approval of C-52 Complex mission requests. Future new C-52 Complex operations may be categorically excluded from detailed environmental analyses if they are determined to be similar in scope and impact potential to those analyzed in this REA. By tiering the environmental analyses for such similar operations off this REA, the Air Force would save both time and money and would be able to respond more quickly and efficiently to high priority or crisis C-52 Complex mission requests.

1.3 Location of the Proposed Action

The Eglin Military Complex encompasses approximately 724 mi² of land in the Florida panhandle and consists of the Eglin Reservation in Santa Rosa, Okaloosa, and Walton counties, and property on Santa Rosa Island and Cape San Blas (**Figure 1-1**). Eglin AFB includes land assets, cantonment areas, and the ETTC. The ETTC is composed of the following five components:

- Test areas/sites
- Interstitial areas (areas beyond and between the test areas)
- Eglin Gulf Test and Training Range (EGTTR)
- Airspace (over land and water)
- Estuarine and riverine areas

The C-52 Complex encompasses approximately 28.2 mi² of land in the southeastern part of Eglin AFB in Walton County, Florida (**Figure 1-2**). It is divided into the following six test areas (**Figure 1-3**):

- C-52A - 4.01 mi²
- C-52C - 3.86 mi²
- C-52E - 9.24 mi²
- C-52N - 5.12 mi²
- C-52W - 6.00 mi²

1.4 Applicable Regulatory Requirements

Regulations relevant to NEPA and the resources assessed in this REA include, but are not limited to, the following:

- Title 40, CFR, Parts 1500-1508
- Title 42, U.S. Code, Sections 4321-4370f
- Title 32 CFR Part 989, *Environmental Impact Analysis Process*
- Executive Order (EO) 11988, *Floodplain Management*, May 24, 1977
- EO 11990, *Protection of Wetlands*, May 24, 1977
- EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, February 11, 1994
- EO 13175, *Consultation and Coordination With Indian Tribal Governments*, November 6, 2000
- DoD Instruction 4715.9, *Environmental Planning and Analysis*, May 3, 1996
- Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process*, March 12, 2003
- AFI 32-7064, *Integrated Natural Resources Management*, September 17, 2004
- AFI 32-7065, *Cultural Resources Management Program*, June 1, 2004
- AFI 13-212, *Range Planning and Operations*, November 16, 2007
- Eglin Air Force Base Instruction (EAFBI) 13-212, *Range Planning and Operations*
- Noise Control Act (Title 42, U.S. Code, Sections 4901 et seq.)
- Clean Air Act (Title 42, U.S. Code, Sections 7401 et seq.)
- Clean Water Act (Title 33, U.S. Code, Sections 1251 et seq.)
- Rivers and Harbors Act (Title 33, U.S. Code, Section 401)
- National Historic Preservation Act (Title 16, U.S. Code, Section 470)
- Archaeological Resources Protection Act (Title 16, U.S. Code, Section 470)
- Endangered Species Act (Title 16, U.S. Code, Section 1531 et seq.)
- Coastal Zone Management Act (Title 16, U.S. Code, Section 1451 et seq.)
- Resource Conservation and Recovery Act (Title 42, U.S. Code, Section 6901 et seq.)

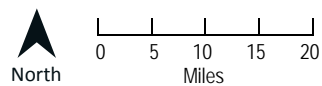
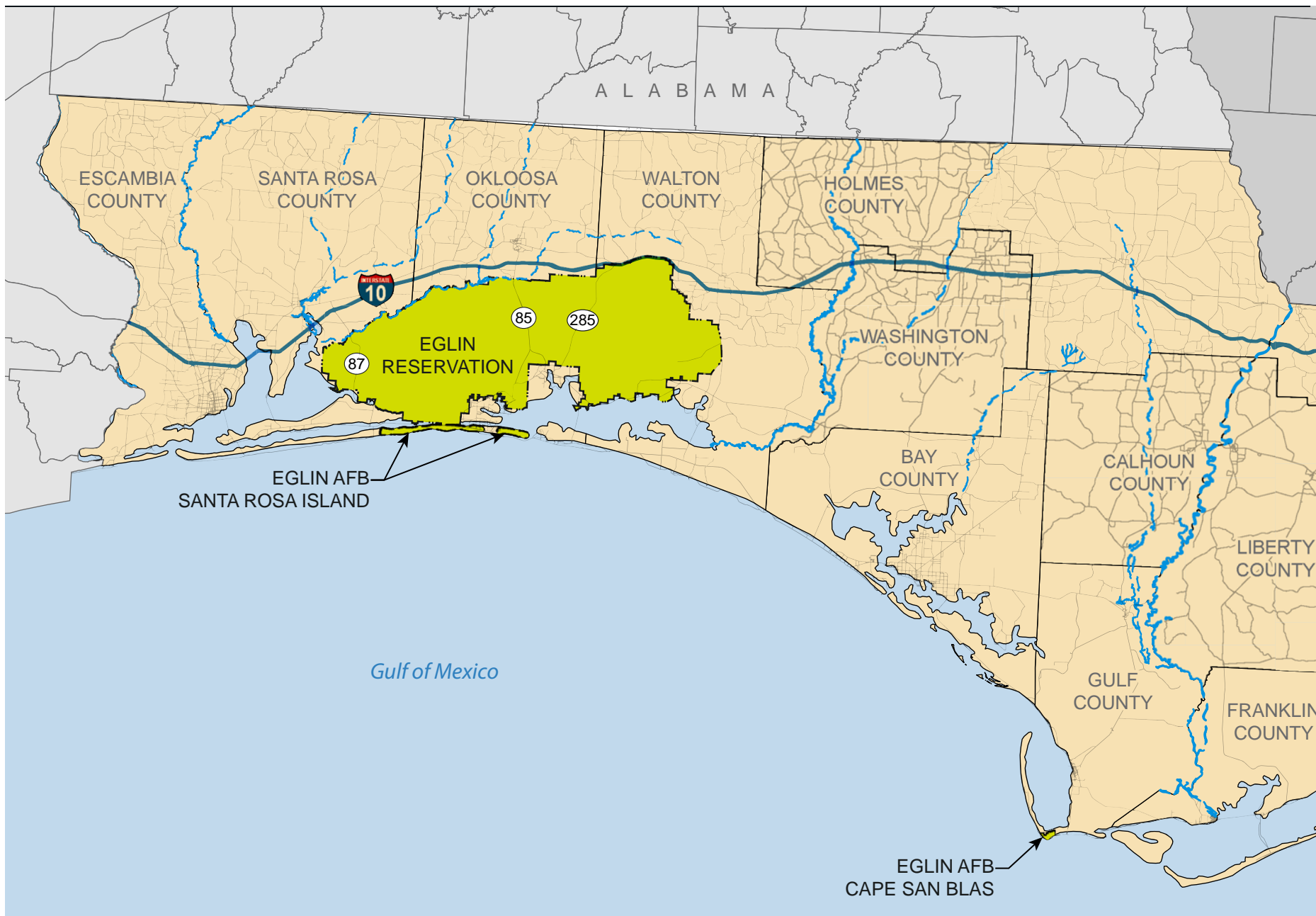
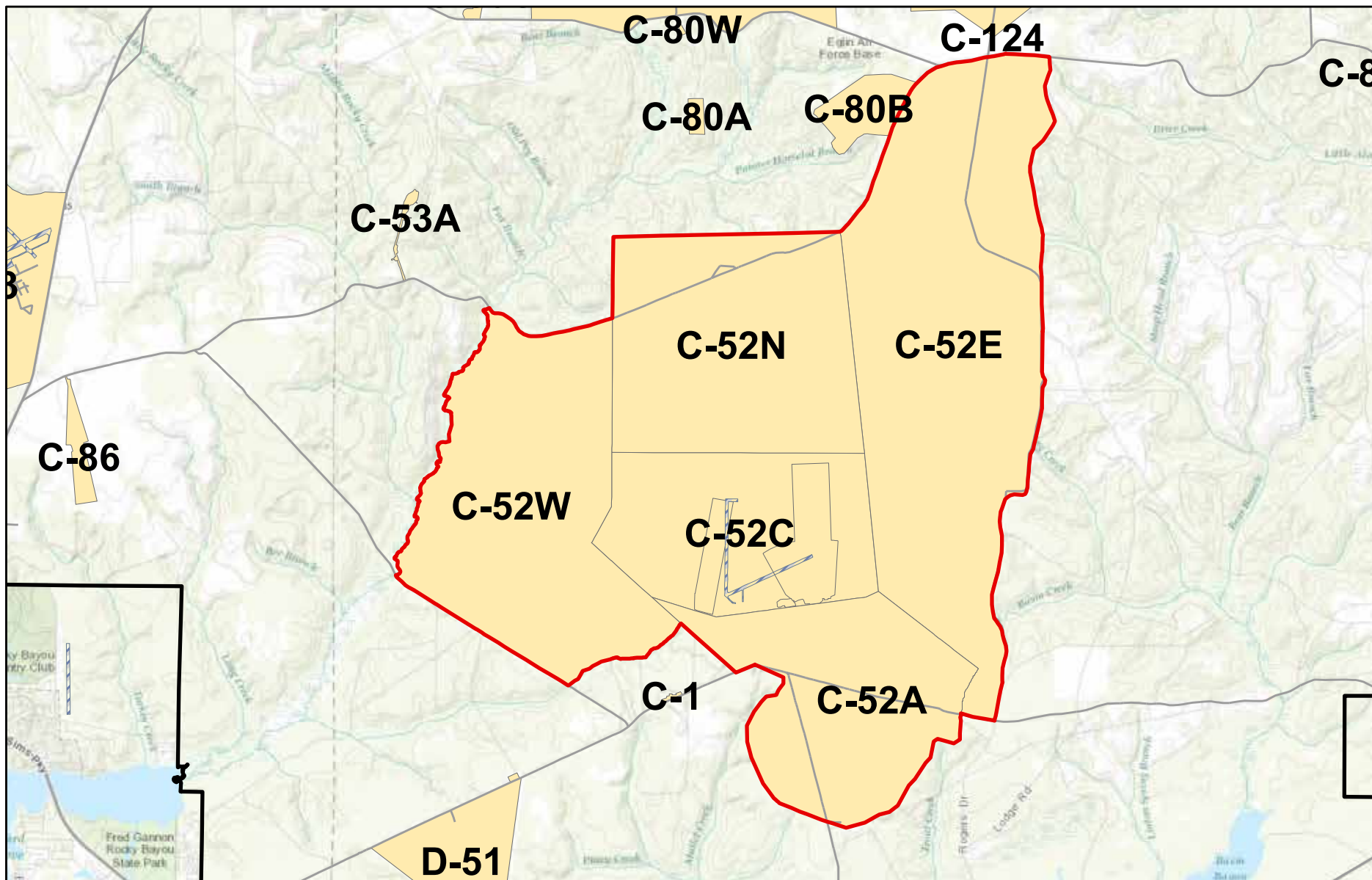


FIGURE 1-1
Eglin Vicinity Map
Test Area C-52 Complex REA



Legend

- Road
- Test Area
- Eglin AFB
- C-52 Complex



FIGURE 1-3
Test Area C-52 Complex Site Map
Test Area C-52 Complex REA

This REA is required to accomplish the following objectives:

- Provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a FONSI.
- Aid in the Air Force's compliance with NEPA when an EIS is not necessary and facilitate preparation of an EIS when necessary.

AFI 32-7061 directs Air Force officials to follow 32 CFR 989, which specifies the procedural requirements for the implementation of NEPA and requires consideration of environmental consequences as part of the planning and decision-making process. 32 CFR 989.14(g) requires preparation of a Finding of No Practicable Alternative (FONPA), which must be submitted to the Major Command Environmental Planning Function when the alternative selected is located in jurisdictional wetlands/surface waters or floodplains.

1.5 Interagency Coordination and Public Involvement

The Air Force invites public participation in the evaluation of the Proposed Action through the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision-making. The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require federal agencies to cooperate with and consider state and local views in implementing a federal proposal. AFI 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning* (IICEP), requires the Air Force to implement the IICEP process, which is used for the purpose of facilitating agency coordination and implementing scoping requirements under NEPA.

All agencies, organizations, and members of the public having a potential interest in the Proposed Action will be given an opportunity to provide comments on the Environmental Assessment (EA) during a 30-day review period. At the end of the 30-day review period, the Air Force will evaluate all comments received and will modify the EA and/or Proposed Action based on the comments as appropriate. The Air Force may then execute a FONSI and proceed with the Proposed Action. If it is determined that implementation of the Proposed Action would result in significant impacts, the Air Force will either publish in the Federal Register a Notice of Intent to prepare an EIS, revise the Proposed Action to avoid significant impacts, incorporate mitigation to reduce impact to less than significant, or not take the action.

1.5.1 Coastal Zone Management Consistency

The federal Coastal Zone Management Act (CZMA) provides assistance to states, in cooperation with federal and local agencies, for developing land and water use programs in coastal zones. According to Section 307 of the CZMA, federal projects that affect land uses, water uses, or coastal resources in a state's coastal zone must be consistent, to the maximum extent practicable, with the enforceable policies of that state's federally approved coastal zone management plan.

The Florida Coastal Management Program (FCMP) is based on a network of agencies implementing 24 statutes that protect and enhance Florida's natural, cultural, and economic coastal resources. The Florida Department of Environmental Protection (FDEP) implements the FCMP through the Florida State Clearinghouse. The Clearinghouse routes applications for federal activities, such as EAs, to the appropriate state, regional, and local reviewers to determine federal agency consistency with the FCMP. Following their review of the EA, the FCMP state agencies provide comments and recommendations to the Clearinghouse based on their statutory authorities. Based on an evaluation of the comments and recommendations, FDEP makes the state's CZMA consistency determination for the proposed federal activity. Comments and recommendations regarding federal agency consistency are then forwarded to the applicant in the state clearance letter issued by the Clearinghouse.

A letter and copies of the draft EA and draft FONSI, along with the Air Force's federal CZMA consistency determination, which is provided as Appendix A, were sent to the Florida State Clearinghouse to obtain the state's CZMA consistency determination for the Proposed Action. The state's CZMA consistency

determination for the Proposed Action, all comments received from the Florida State Clearinghouse, and the Air Force's responses to the received comments are included in Appendix B.

1.5.2 Regulatory Agency Consultation

The Air Force consulted directly with the U.S. Fish and Wildlife Service (USFWS) on the Proposed Action. Consultation with pertinent state agencies, including the Florida Fish and Wildlife Conservation Commission (FWC) and State Historic Preservation Office (SHPO), occurred through the Florida State Clearinghouse. Documentation of USFWS consultation is included in Appendix E. All comments received from the Florida State Clearinghouse and the Air Force's responses to the received comments are included in Appendix B.

1.5.3 Public Involvement

A 30-day public review period was held August 22 – September 20, 2014 to solicit public comments on the draft EA and draft FONSI. The public review/comment period was announced in a public Notice of Availability (NOA) in the *Northwest Florida Daily News* of Fort Walton Beach, Florida and *Bay Beacon* of Niceville, Florida (Appendix C). The draft EA and draft FONSI were made available for public review on the Eglin AFB public website. No comments were received from the public.

1.6 Scope of the REA and Proposed Action

This REA assesses the potential environmental impacts associated with the Air Force's Proposed Action to authorize and implement a new level of activity for TA C-52 Complex operations at Eglin AFB. More specifically, this REA assesses the potential environmental impacts of reasonable alternatives of the Proposed Action, including the No-Action Alternative of maintaining existing conditions, as described in Section 2.

The Region of Influence (ROI) of the Proposed Action is the entire land area of the C-52 Complex (see **Figures 1-2** and **1-3**). C-52 Complex operations are defined as those that originate, traverse, and/or terminate on the C-52 Complex. This REA does not address air operations conducted in the airspace over the C-52 Complex; such air operations are addressed in the REA prepared for Eglin AFB Overland Air Operations. However, this REA does address air operation expendables that impact the C-52 Complex, such as bombs, missiles, gunnery ammunition, chaff, and flares released during air-to-surface testing and training conducted over the C-52 Complex.

Baseline C-52 Complex operations addressed in this REA include those currently conducted and those anticipated to be conducted in the near term. Baseline operations in this REA include the final-state operations of the Army's 7th Special Forces Group (Airborne) (7 SFG), which relocated to Eglin AFB in 2011 but has not reached full buildup of range operations on the C-52 Complex.

C-52 operations primarily include the following:

1.6.1 Testing

Testing operations are conducted to test new, improved, or existing mission-related hardware, software, or tactics. Testing is divided into five categories, which are described below.

Air-to-Surface Missiles/Bombs

Air-to-surface missile/bomb testing involves firing live or inert missiles or bombs from aircraft at designated targets or impact areas. These tests are conducted primarily by the 96th Test Wing (96 TW), primarily on C-52C and C-52N.

Air-to-Surface Guns

Air-to-surface gun testing involves firing live gun ammunition from aircraft at designated targets. Flares and chaff may also be released from aircraft during these tests. These tests are conducted primarily by the 96 TW, primarily on C-52N and, to a lesser extent, on C-52C.

Electronic Countermeasures and Electronic Systems

Electronic Countermeasures (ECM) testing evaluates the aircraft's self-protection system against "lock-on" from electronic tracking systems. Electronic Systems Testing includes testing of radar software, radios, and other electronic systems except ECM. Flares and chaff may be released from aircraft during these tests. These tests are conducted primarily by the 96 TW, primarily on C-52C and, to a lesser extent, on C-52N.

Surface-to-Air

Surface-to-air testing involves directing lasers from the ground at aircraft flying over the C-52 Complex to determine if the laser degrades the performance capabilities of the aircraft's targeting systems for precision guided munitions. No expendables other than the use of lasers are released during these tests. These tests are conducted primarily by the 96 TW, primarily on C-52A.

Ground

Ground testing at the C-52 Complex primarily involves the Seeker Test and Evaluation Facility (STEF). The STEF contains a 300-foot tower used for signature measurement testing of targets. During seeker/sensor tests at the STEF, targets are placed on a turntable at the base of the tower and various seeker/sensor systems characterize the targets' infrared, millimeter wave, and radar signals. Smokes and obscurants may be used during these tests to evaluate the detection system's ability to operate through the smokes and obscurants. The smokes and obscurants may also be tested for their ability to limit detection by the various seeker/sensor systems. These tests are conducted primarily by the 96 TW, primarily on C-52A. Ground testing is also conducted at the Long Range Ballistics Test Facility, which is used for ground aircraft gun testing.

1.6.2 Training

Training operations are conducted to increase or maintain the proficiency of personnel to perform specific mission functions. Training is divided into three categories, which are described below.

Air-to-Surface Bombs/Guns

Air-to-surface bomb/gun training includes aircraft firing of gun ammunition (including small arms ammunition from helicopters) and release of live and inert bombs, flares, and chaff. This training is conducted primarily on C-52N by Special Operations Wing units.

Electronic Countermeasures

ECM training is the same as ECM testing, but is conducted for training purposes. Flares and chaff may be released from aircraft during this training. This training is conducted primarily on C-52C and C-52N by the 33rd Fighter Wing and 325th Fighter Wing.

Surface to Surface

Surface-to-surface training (and testing) consists primarily of artillery, mortar, and Multiple Launch Rocket System (MLRS) firings for indirect-fire activities. The new 7 SFG training ranges on the C-52 Complex will support most surface-to-surface operational training needs, especially for mortar training; however, large scale exercises in the past have used the C-52 Complex for deployment of mortars and conceivably artillery and MLRS launches/impacts. Large-scale exercises of this type have been reduced in number over the years while the U.S. has been involved in significant military operations abroad; however, as these activities scale back, there will be more need for large-scale, multi-Service exercises in the future.

Ground

Ground training on the C-52 Complex includes training conducted by the Navy EOD School and the Army's 7 SFG.

The Navy EOD School provides training to students on techniques for rendering explosive devices safe. This training involves open detonations at designated sites on C-52N and C-52W. The Navy EOD School began

training at Eglin AFB in the mid 1980s and gradually relocated all of its programs to Eglin AFB by 1999, which has since resulted in an increase in Navy open detonation activity on C-52N and C-52W.

The 7 SFG relocated from Fort Bragg, North Carolina to Eglin AFB in 2011 as part of the 2005 Base Realignment and Closure (BRAC) Program. 7 SFG ground training is conducted on C-52C and C-52E and primarily involves the use of small arms, mortars, and grenades, as well as ground maneuvering exercises conducted by troops on foot (use of vehicles during ground maneuvering exercises is limited).

1.6.3 Other

The “Other” category includes Civil Engineering (CE)-EOD operations and Smoke Week events on the C-52 Complex.

CE-EOD

The 96th Civil Engineer Group (96 CEG) conducts open detonations at a designated site on C-52N for disposal of out-of-date or damaged munitions and waste explosives. CE-EOD operations are neither testing or training, but do result in the release of expendables on the C-52 Complex.

Smoke Week

Smoke Week events primarily involve testing of man-made and natural obscurants on electro-optical devices. They are conducted on C-52A by the U.S. Army Chemical Research, Development, and Engineering Center. Historically, Smoke Week events have been conducted once a year and not on a regular annual basis. Although Smoke Week events involve testing, they are included in the “Other” category because they are special testing operations that are not conducted on a regular basis.

1.7 Impact Analysis

This REA provides a detailed analysis of the potential direct, indirect, and cumulative impacts that would result from implementation of the Proposed Action. Direct impacts are those that would result from the Proposed Action at the same time and in the same place the action is being implemented. Indirect impacts are those that would result from the Proposed Action at a later time or farther removed in distance from the action, but are still reasonably foreseeable. Cumulative impacts are those that would result from the incremental impacts of the Proposed Action when added to other past, present, and reasonably foreseeable future actions. As appropriate, impacts are further discussed as being temporary, short-term, or long-term.

The magnitude of the impact is considered regardless of whether the impact is adverse or beneficial. The following terms are used to describe the magnitude of impacts in this REA:

- No Effect: The action would not cause a detectable change.
- Negligible: The impact would be at the lowest level of detection; the impact would not be significant.
- Minor: The impact would be slight but detectable; the impact would not be significant.
- Moderate: The impact would be readily apparent; the impact would not be significant.
- Major: The impact would be clearly adverse or positive; the impact has the potential to be significant. The significance of adverse and positive impacts is subject to interpretation and should be determined based on the final proposal. In cases of adverse impacts, the impact may be reduced to less than significant by mitigation, design features, and/or other measures that may be taken.

1.7.1 Resources Identified for Detailed Analysis

The following resources are analyzed in detail in this REA:

Air Quality

The analysis of air quality impacts in this REA focuses on potential degradation of air quality from emissions released during C-52 Complex operations.

Noise

The analysis of noise impacts in this REA focuses on the potential impacts of noise generated during C-52 Complex operations on noise-sensitive receptors such as residential communities. Potential noise impacts on biological receptors (biota, including sensitive species) are assessed as part of the biological resources impact analysis.

Soils

The analysis of soil impacts in this REA focuses on potential degradation of soil quality from hazardous materials released during C-52 Complex operations. Potential soil erosion impacts from munitions use, troop movement, and vehicles use are also assessed.

Water Resources

The analysis of water resources impacts in this REA focuses on the potential physical impacts of C-52 Complex operations on surface waters, wetlands, and floodplains and the potential degradation of surface water and groundwater quality from hazardous materials released during C-52 Complex operations. Potential indirect impacts to water resources via soil erosion/sedimentation from munitions use, troop movement, and vehicles use are also assessed.

Biological Resources

The analysis of biological resources impacts in this REA focuses on the potential impacts that noise, munitions strikes, ground maneuvering, wildfire starts, and hazardous materials associated with C-52 Complex operations would have on biota, including sensitive species.

Cultural Resources

The analysis of cultural resources impacts in this REA focuses on the potential impacts of C-52 Complex operations on cultural resources, which include but are not limited to, archaeological sites; historic buildings and structures; historic or prehistoric graves, cemeteries, or graveyards; and places of sacred and cultural significance to Native American Tribes and the local community.

Safety

The analysis of safety impacts in this REA focuses on the potential impacts of C-52 Complex operations on the health and safety of the public and military personnel.

Environmental Justice and Protection of Children

The analysis of Environmental Justice in this REA assesses whether C-52 Complex operations would have disproportionate environmental or human health impacts on minority or low-income populations. The analysis of Protection of Children assesses whether C-52 Complex operations would result in environmental health and safety risks that may disproportionately affect children.

1.7.2 Resources Eliminated from Detailed Analysis

The Proposed Action was determined to have little to no potential to affect several resources. Therefore, these resources were eliminated from detailed analysis in this REA. The resources that were eliminated from detailed analysis and the rationale for their elimination are presented below:

Airspace

All of the airspace that overlies the C-52 Complex is Restricted Area airspace (R-2914A) that is reserved for military operations and cannot be entered by private or commercial aircraft without permission from Eglin AFB. Therefore, the Proposed Action would have no potential to result in non-military airspace restrictions or congestion.

Geology

The Proposed Action would not involve any intrusive activity that would affect subsurface geological formations. Therefore, the Proposed Action would have no effect on geology.

Topography

The Proposed Action would not involve land contouring or any other activity that would affect site topography. Therefore, the Proposed Action would have no effect on topography.

Floodplains

The Proposed Action would not involve construction or any other activity that would displace floodplain area or increase flooding potential. Therefore, the Proposed Action would have no effect on floodplains.

Hazardous Materials and Wastes

This REA does not address hazardous materials and wastes management on the C-52 Complex, which is conducted in accordance with all applicable environmental compliance regulations and Eglin AFB environmental management plans. The potential impacts that hazardous materials released during C-52 Complex operations have on air quality, soils, water resources, and biological resources are assessed in this REA as part of the impact analyses for those resources.

Land Use

The Proposed Action would not change the land use classification of any on-base or off-base area. The C-52 Complex is closed to the public; therefore, the Proposed Action would not result in restrictions on public access. For these reasons, the Proposed Action would have no effect on land use.

Socioeconomics, Utilities, Solid Waste, and Transportation

The Proposed Action would not involve construction, personnel hires/relocations, or otherwise change the number of persons working at Eglin AFB or living in the local area, or have an impact on the local economy. Under Alternative 1, baseline C-52 Complex operations are defined as those subsequent to the final-state relocation of the Army's 7 SFG to Eglin AFB, including final-state buildup of 7 SFG ranges/facilities and associated operations on the C-52 Complex. The socioeconomic (demographics, economy, housing, schools, and emergency services), utility (energy, potable water, and wastewater), solid waste, and transportation impacts associated with 7 SFG personnel relocations and range/facility construction at Eglin AFB have been analyzed in the Eglin BRAC-2005 EIS (U.S. Air Force, 2008). Under Alternative 2, a mission surge in C-52 Complex operations would not involve construction or increases in personnel - only increases in the number of testing and training missions and associated expendables. For these reasons, the Proposed Action would have little to no effect on the local demographics, local economy, number of persons living in on-base or off-base housing, number of children attending schools in the area, demand for emergency services (medical, police, and fire-fighting), energy consumption/distribution, potable water consumption/distribution, domestic wastewater distribution/treatment, solid waste generation/disposal, or ground traffic levels/flow.

Alternatives

2.1 Introduction

The Air Force's Proposed Action is to authorize and implement a new level of activity for TA C-52 Complex operations at Eglin AFB. Under NEPA and 32 CFR Part 989, this REA is required to analyze the potential environmental impacts of "reasonable" alternatives of the Proposed Action, including the No Action Alternative of maintaining existing conditions. Reasonable alternatives are those that meet the underlying purpose of and need for the Proposed Action, are feasible from a technical and economic standpoint, and, if applicable, meet reasonable screening criteria (selection standards) that are suitable to a particular action. Alternatives that are determined to not be reasonable can be eliminated from detailed analysis in this REA.

2.2 Alternatives Carried Forward for Detailed Analysis

The alternatives carried forward for detailed analysis in this REA were developed during an interdisciplinary team meeting at Eglin AFB, which included, but was not limited to, representatives from the 96 TW, 96th Range Support Squadron (96 RANSS), 96th Civil Engineer Group/Environmental Planning Office (96 CEG/CEIEA), and 96th Civil Engineer Group/Natural Resources Office (96 CEG/CEIEA).

The following alternatives are analyzed in detail in this REA:

- Alternative 1 (No Action Alternative): Maintain TA C-52 Complex operations at the baseline level
- Alternative 2: Implement TA C-52 Complex operations at a mission surge level

2.2.1 Alternative 1 (No Action Alternative)

Alternative 1 is the No Action Alternative of maintaining TA C-52 Complex operations at the baseline level. Baseline C-52 Complex operations under Alternative 1 are those currently conducted and those anticipated to be conducted in the near term.

The baseline level under Alternative 1 is defined as follows:

- The number of annual missions determined to be representative of current/near-term mission activity on the C-52 Complex, estimated based on the following:
 - Average annual mission activity conducted since Fiscal Year (FY) 1995 (previous baseline year analyzed) for all missions except for 7 SFG missions
 - Projections of annual 7 SFG mission activity for the C-52 Complex developed in association with the Eglin BRAC-2005 EIS (U.S. Air Force, 2008)
- The quantities of expendables associated with baseline C-52 Complex operations, estimated based on the following:
 - Estimates by 96 TW personnel for quantities of live air-to-surface expendables (missiles, rockets, bombs, ammunition, and flares) (David Gould, Personal Communication, December 10, 2013)
 - FY 2012 data for quantities of inert bombs and Navy EOD School expendables (detonations)
 - Quantities of 7 SFG expendables projected for the C-52 Complex in the Eglin BRAC-2005 EIS (U.S. Air Force, 2008) – identified for Special Operations Forces Ranges 2, 5, 6, 9, 11, and 13
 - Maximum baseline quantities identified for laser operations and chaff in the 2005 TA C-52 Complex Environmental Baseline Document (EBD) (U.S. Air Force, 2005)
 - Baseline quantities of smokes, CE-EOD expendables (detonations), and Smoke Week expendables analyzed in the 1999 TA C-52 Complex PEA (U.S. Air Force, 1999)

Table 2-1 presents the Alternative 1 (current baseline) annual mission activity for the C-52 Complex (Smoke Week activity is addressed separately further below). For comparison purposes, **Table 2-1** also includes the previous baseline mission activity (FY 1995) analyzed in the 1999 TA C-52 Complex PEA (U.S. Air Force, 1999).

TABLE 2-1

Alternative 1 and Previous Baseline Annual Mission Activity for the C-52 Complex*Test Area C-52 Complex REA*

C-52 Complex Operation	Alternative 1 (Current Baseline) Missions ^a						Previous Baseline Missions ^b	Percent Change
	C-52A	C52C	C-52N	C-52E	C-52W	Total		
Testing								
A-to-S Missiles/Bombs	0	8	16	1	0	25	42	-40%
A-to-S Guns	2	15	171	0	12	200	10	+1,900%
ECM and ES	2	54	6	0	1	63	88	-28%
Surface-to-Air	44	7	8	0	7	66	5	+1,220%
Ground	34	6	1	0	1	42	171	-75%
Subtotal	82	90	202	1	21	396	316	+25%
Training								
A-to-S Bombs/Guns	0	2	84	471	0	557	106	+425%
ECM	1	2	1	0	1	5	138	-96%
Ground	0	783	114	587	154	1,638	121	+1,254%
Subtotal	1	787	199	587	155	2,200	365	+503%
Other								
CE-EOD	0	0	9	0	0	9	9	0
TOTAL	83	877	410	588	176	2,605	681	+283%

A-to-S - Air-to-Surface

ECM - Electronic Countermeasures

ES - Electronic Systems

CE-EOD – Civil Engineering-Explosive Ordnance Disposal

^a – Estimated based on the following:

- Average annual mission activity conducted since Fiscal Year (FY) 1995 (previous baseline year analyzed) for all missions except for 7th Special Forces Group (Airborne) (7 SFG) missions
- Projections of annual 7 SFG mission activity for the C-52 Complex developed in association with the Eglin BRAC-2005 Environmental Impact Statement (EIS) (U.S. Air Force, 2008)

^b – Previous baseline mission activity (FY 1995) analyzed in the 1999 Test Area C-52 Complex Programmatic Environmental Assessment (U.S. Air Force, 1999).

Table 2-2 presents the Alternative 1 (current baseline) annual expendable quantities for the C-52 Complex (EOD and Smoke Week expendables are addressed separately further below). For comparison purposes, **Table 2-2** also includes the previous baseline expendable quantities (FY 1995) analyzed in the 1999 TA C-52 Complex PEA (U.S. Air Force, 1999).

TABLE 2-2

Alternative 1 and Previous Baseline Annual Expendable Quantities for the C-52 Complex*Test Area C-52 Complex REA*

Location	Category	Expendable	Alternative 1 Quantity ^a (Current Baseline)	Previous Baseline Quantity ^b (1999 No-Action Alternative)	Percent Change
C-52A	Laser	Laser Operation	419 (operations)	163 (operations)	+157%
	Smoke	Smoke Pot	50	50	0
	Smoke	Smoke Grenade	544	544	0
C-52C	Cluster Bomb	Live CBU-97	0	18	-100
	Flare	Various	145	1,590	-91%
	Gun Ammunition	30 MM	9,000	0	N/A
	Grenade	40 MM	30,000	0	N/A
	Mortar	60 MM	8,200	0	N/A
	Mortar	81 MM	6,300	0	N/A
	Small Arms Ammunition	.45 Caliber	20,000	0	N/A

TABLE 2-2

Alternative 1 and Previous Baseline Annual Expendable Quantities for the C-52 Complex*Test Area C-52 Complex REA*

Location	Category	Expendable	Alternative 1 Quantity ^a (Current Baseline)	Previous Baseline Quantity ^b (1999 No-Action Alternative)	Percent Change
C-52C con't.	Small Arms Ammunition	.50 Caliber	150,000	0	N/A
	Small Arms Ammunition	5.56 MM	1,966,000	0	N/A
	Small Arms Ammunition	7.62 MM	548,000	0	N/A
	Small Arms Ammunition	9 MM	1,900,000	0	N/A
	Chaff	Various	465 (bundles)	3,633 (bundles)	-87%
	Smoke	Smoke Generator	110 (events)	110 (events)	0
	Inert Bomb	Various	23	32	-28%
C-52N	Missile	Hellfire	10	0	N/A
	Missile	AGM-65	10	0	N/A
	Missile	AGM-176	20	0	N/A
	Cluster Bomb	CBU-97	10	0	N/A
	Bomb	MK-66 (1,000 lbs)	20	0	N/A
	Bomb	250 lbs	50	0	N/A
	Bomb	500 lbs	50	0	N/A
	Bomb	1,000 lbs	50	0	N/A
	Bomb	2,000 lbs	50	0	N/A
	Rocket	2.75" rockets	500	0	N/A
	Rocket	5" rockets	250	0	N/A
	Flare	Various	5,360	2,237	+140%
	Small Arms Ammunition	7.62 MM	20,000	241,732	-92%
	Small Arms Ammunition	.50 Cal	10,000	23,811	-58%
	Gun Ammunition	20 MM	50,000	31,965	+56%
	Gun Ammunition	25 MM	80,000	13,354	+499%
	Gun Ammunition	30 MM	10,000	0	N/A
	Gun Ammunition	40 MM	15,000	5,450	+175%
	Gun Ammunition	105 MM	5,000	1,053	+375%
	Chaff	Various	435 (bundles)	435 (bundles)	0
	Inert Bomb	Various	30	159	-81%
C-52E	Guided Bomb Unit	GBU-12 (live)	350	0	N/A
	Guided Bomb Unit	GBU-12 (inert)	121	0	N/A
	Grenade	40 MM	27,000	0	N/A
	Small Arms Ammunition	12 Gauge	4,000	0	N/A
	Small Arms Ammunition	.50 Caliber	90,000	0	N/A
	Small Arms Ammunition	5.56 MM	1,000,000	0	N/A
	Small Arms Ammunition	7.62 MM	500,000	0	N/A
	Hand Grenade	Hand Grenade	1,100	0	N/A
	Inert Bomb	Various	29	0	N/A

^a – Estimated based on following:

- Estimates by 96th Test Wing personnel for quantities of live Air-to-Surface expendables (missiles, rockets, bombs, ammunition, and flares) (David Gould, Personal Communication, December 10, 2013)
- Fiscal Year 2012 data for quantities of inert bombs and Navy EOD School expendables (detonations)
- Quantities of 7th Special Forces Group (Airborne) expendables projected for the C-52 Complex in the Eglin BRAC-2005 EIS (U.S. Air Force, 2008) – identified for Special Operations Forces Ranges 2, 5, 6, 9, 11, and 13
- Maximum baseline quantities identified for laser operations and chaff in the 2005 TA C-52 Complex Environmental Baseline Document (U.S. Air Force, 2005)
- Baseline quantities of smokes, CE-EOD expendables (detonations), and Smoke Week expendables analyzed in the 1999 TA C-52 Complex Programmatic Environmental Assessment (U.S. Air Force, 1999)

^b – Previous baseline expendable quantities (FY 1995) analyzed in the 1999 Test Area C-52 Complex Programmatic Environmental Assessment (U.S. Air Force, 1999).

Tables 2-3 and 2-4 presents the Alternative 1 annual quantities and Net Explosive Weight (NEW) of expendables detonated by the Navy EOD School on C-52N and C-52W, respectively (based on FY 2012 data).

TABLE 2-3

Alternative 1 Annual Quantities and Net Explosive Weights of Expendables Detonated by the Navy EOD School on C-52N
Test Area C-52 Complex REA

Category	Expendable	Quantity Detonated ^a	NEW per Item (pounds)
Gun Ammunition	CTG, 40MM HE	7,251	0.14
Gun Ammunition	CTG, 60MM HE	2,292	0.89
Gun Ammunition	CTG, 105MM, HE	584	8.28
Gun Ammunition	CTG, 4.2 INCH, HE	732	6.53
Gun Ammunition	PROJECTILE, 5 INCH, 38 CAL, HE	1,752	9.15
Gun Ammunition	PROJECTILE, 155MM, HE	1,164	23.93
Gun Ammunition	PROJECTILE, 8" HE	48	36.68
Bomb	BOMB, GP, MK-82	146	184.11
Other	GRENADE, THERMITE	11	1.70
Other	GRENADE, RIFLE, HEAT	740	0.61
Other	MINE, ANTI-PERSONNEL	2,646	1.55
Other	MINE, ANTI-TANK M15	663	22.49
Other	DEMOLITION KIT, BANGALORE	74	0.84
Other	CHG, DEMO, CRATERING	74	55.24
Other	CHG, DEMO, FLEX LINEAR	74	49.32
Other	CAP, BLASTING, NON-ELECTRIC	604	0.00
Other	CORD, DET, PETN	37,900	0.01
Other	FUSE, BLASTING, TIME	11,100	< 0.01
Other	CHG ASSEMBLY, DEMO, M183	158	19.75
Other	CHG ASSEMBLY, DEMO, MK 133	159	20.76
Other	CHG ASSEMBLY, DEMO, MK 135	158	20.75
Other	IGNITOR, TIME BLASTING	942	< 0.01
Other	WARHEAD, TORPEDO MK37	82	330.00

NEW – Net Explosive Weight

^a – Based on Fiscal Year 2012 data.

TABLE 2-4

Alternative 1 Annual Quantities and Net Explosive Weights of Expendables Detonated by the Navy EOD School on C-52W
Test Area C-52 Complex REA

Category	Expendable	Quantity Detonated ^a	NEW per Item (pounds)
Gun Ammunition	CTG, 40MM HE	7,169	0.14
Gun Ammunition	CTG, 60MM HE	1,392	0.90
Gun Ammunition	CTG, 81MM HE	732	2.42
Gun Ammunition	CTG, 105MM, HE	582	8.39
Gun Ammunition	PROJECTILE, 5 INCH, 38 CAL, HE	871	9.28
Gun Ammunition	PROJECTILE, 155MM, HE	565	24.10
Other	CHG, LIGHTWEIGHT, DISPOSAL	75	0.19
Other	CAP, BLASTING, ELECTRIC	642	< 0.01
Other	GRENADE, RIFLE, HEAT	730	0.62
Other	MINE, ANTI-TANK M15	292	22.80
Other	CHG, DEMO, MK 45	59	0.07
Other	CHG, DEMO, BLOCK, M112	2,892	1.25
Other	CHG, DEMO, CRATERING	75	40.43
Other	CAP, BLASTING, NON-ELECTRIC	2,964	< 0.01
Other	CHG, DEMO, SHAPED	75	15.00
Other	CHG, DEMO, M3	59	30.00
Other	CORD, DET, PETN	147,000	0.01
Other	CABLE CUTTER, MK 3	59	0.21

TABLE 2-4

Alternative 1 Annual Quantities and Net Explosive Weights of Expendables Detonated by the Navy EOD School on C-52W
Test Area C-52 Complex REA

Category	Expendable	Quantity Detonated ^a	NEW per Item (pounds)
Other	FUSE, BLASTING, TIME	18,875	< 0.01
Other	CHG, DEMO, MK 47	59	0.30
Other	CHG, DEMO, SHEET	75	1.82
Other	CHG, DEMO, MK 86	59	0.53
Other	CHG, DEMO, MK 87	59	0.17
Other	CHG, DEMO, MK 88	59	< 0.01
Other	CHG, DEMO, MK 89	59	0.49
Other	CUTTER, HE, MK 23	71	0.28
Other	CUTTER, HE, MK 24	75	1.10
Other	CHG, FLEX, DEMO, MK 140	78	0.04
Other	CHG, DEMO, FLEX, MK 144	295	0.17
Other	CHG, DEMO, FLEX, MK 149	375	0.77
Other	IGNITOR, TIME BLASTING	1,289	< 0.01

NEW – Net Explosive Weight

^a – Based on Fiscal Year 2012 data.

Table 2-5 presents the Alternative 1 annual quantities of expendables detonated by CE- EOD on C-52N. CE-EOD has operated on C-52N intermittently and with less overall activity since the previous analyzed baseline (FY 1995) to the present. To account for the potential that future CE-EOD activity levels may be comparable to past levels, the previous analyzed baseline CE-EOD activity is used in this REA to represent the current baseline CE-EOD activity under Alternative 1.

TABLE 2-5

Alternative 1 Annual Quantities of Expendables Detonated by CE-EOD on Test Area C-52N
Test Area C-52 Complex REA

Category	Expendable	Quantity Detonated ^a
Flare	IR CB RR-119	624
Flare	Mk-25	18
Gun Ammunition	30 MM TP	1,188
Gun Ammunition	20 MM HEI	19
Gun Ammunition	20 MM TPT	5,468
Gun Ammunition	25 MM HEI	6,987
Gun Ammunition	40 MM API	1,610
Other	Blasting Cap	321
Other	Demo Charge, M 112	3,920
Other	Demo Charge, TNT	442
Other	Detonation Cord	5,655
Other	Blasting Time Fuze	1,932
Other	Ground Burst Simulator	10
Other	Hand Grenade Incendiary	30
Other	Smoke Grenade, M18	7
Other	Igniter Time	220
Small Arms Ammunition	5.56 Blanks	93
Small Arms Ammunition	5.56 MM Ball	8
Small Arms Ammunition	7.62 MM M-80	150,879
Small Arms Ammunition	Cartridge, .50 Cal	22,005
Small Arms Ammunition	Cartridge, 7.62 MM	720

^a – Based on Fiscal Year 1995 data (U.S. Air Force, 1999).

Table 2-6 presents the Alternative 1 quantities of expendables for a Smoke Week event conducted on C-52A. Smoke Week events were conducted on C-52A on a regular annual basis during the early to mid 1990s, but only once since then, in 2005. To account for the potential that future Smoke Week activity levels on C-52A may be comparable to past levels, the previous analyzed baseline Smoke Week activity (Smoke Week XV - 1993) is used in this REA to represent the current baseline Smoke Week activity level under Alternative 1.

TABLE 2-6

Alternative 1 Quantities of Expendables for a Smoke Week Event on C-52A
Test Area C-52 Complex REA

Expendable	Quantity ^a
Aluminum-Coated Glass	67 lbs
Aluminum	900 lbs
Brass Flake	4,915 lbs
Carbon Fiber	452 lbs
Crude Oil	165 gal
Dust (Silica)	2,500 lbs
Fog Oil	1,424 gal
Graphite	9,752 lbs
Kaolin	1,800 lbs
Nickel-Coated Carbon	67 lbs
Red Phosphorus	1,755 lbs
White Phosphorus	1,215 lbs

lbs – pounds

gal - gallons

^a – Based on Smoke Week XV conducted in 1993 (U.S. Air Force, 1999).

2.2.2 Alternative 2

Alternative 2 is the implementation of TA C-52 Complex operations at a mission surge level. Mission surge C-52 Complex operations under Alternative 2 are those anticipated to occur during wartime or other significant military involvement, and may continue for an indeterminate time. The mission surge level under Alternative 2 is defined as follows:

- A 200 percent increase in Alternative 1 annual mission activity conducted on the C-52 Complex. Navy EOD School, CE-EOD, and Smoke Week activity are assumed to not increase during a mission surge and, therefore, remain constant under Alternative 2.
- A 200 percent increase in Alternative 1 annual expendable quantities for the C-52 Complex. Navy EOD School, CE-EOD, and Smoke Week expendables are assumed to not increase during a mission surge and, therefore, remain constant under Alternative 2.

Table 2-7 presents the Alternative 1 (current baseline) and Alternative 2 (mission surge) annual mission activity for the C-52 Complex.

TABLE 2-7

Alternative 1 and Alternative 2 Annual Mission Activity for the C-52 Complex
Test Area C-52 Complex REA

C-52 Complex Operation	Alternative 1 (Current Baseline) Missions / Alternative 2 ^a (Mission Surge) Missions					
	C-52A	C52C	C-52N	C-52E	C-52W	Total
Testing						
A-to-S Missiles/Bombs	0 / 0	8 / 24	16 / 48	1 / 3	0 / 0	25 / 75
A-to-S Guns	2 / 6	15 / 45	171 / 513	0 / 0	12 / 36	200 / 600
ECM and ES	2 / 6	54 / 162	6 / 18	0 / 0	1 / 3	63 / 189
Surface-to-Air	44 / 132	7 / 21	8 / 24	0 / 0	7 / 21	66 / 198

TABLE 2-7

Alternative 1 and Alternative 2 Annual Mission Activity for the C-52 Complex*Test Area C-52 Complex REA*

C-52 Complex Operation	Alternative 1 (Current Baseline) Missions / Alternative 2 ^a (Mission Surge) Missions					
	C-52A	C52C	C-52N	C-52E	C-52W	Total
Ground	34 / 102	6 / 18	1 / 3	0 / 0	1 / 3	42 / 126
Subtotal	82 / 246	90 / 270	202 / 606	1 / 3	21 / 63	396 / 1,188
Training						
A-to-S Bombs/Guns	0 / 0	2 / 6	84 / 252	471 / 1,413	0 / 0	557 / 1,671
ECM	1 / 3	2 / 6	1 / 3	0 / 0	1 / 3	5 / 15
Ground	0 / 0	783 / 2,349	114 / 114 ^b	587 / 1,761	154 / 154 ^b	1,638 / 4,378
Subtotal	1 / 3	787 / 2,361	199 / 369	1,058 / 3,174	155 / 157	2,200 / 6,064
Other						
CE-EOD	0 / 0	0 / 0	9 / 9 ^c	0 / 0	0 / 0	9 / 9
TOTAL	83 / 249	877 / 2,631	410 / 984	1,059 / 3,177	176 / 220	2,605 / 7,261

A-to-S - Air-to-Surface

CE-EOD – Civil Engineering-Explosive Ordnance Disposal

ECM - Electronic Countermeasures

ES - Electronic Systems

^a - A 200 percent mission surge increase in Alternative 1 annual mission activity.^b - Navy Explosive Ordnance Disposal School annual missions (mission activity remains constant under Alternative 2).^c - CE-EOD annual missions (mission activity remains constant under Alternative 2).

Table 2-8 presents the Alternative 1 (current baseline) and Alternative 2 (mission surge) annual expendable quantities for the C-52 Complex. Navy EOD School expendables on C-52N and C-52W, CE-EOD expendables on C-52N, and Smoke Week expendables on C-52A under Alternative 2 are the same as those under Alternative 1 (see Tables 2-3 through 2-6).

TABLE 2-8

Alternative 1 and Alternative 2 Annual Expendable Quantities for the C-52 Complex*Test Area C-52 Complex REA*

Location	Category	Expendable	Alternative 1 Quantity (Current Baseline)	Alternative 2 Quantity ^a (Mission Surge)	Percent Change
C-52A	Laser	Laser Operation	419 (operations)	1,257 (operations)	+200
	Smoke	Smoke Pot	50	150	+200
	Smoke	Smoke Grenade	544	1,632	+200
C-52C	Cluster Bomb	Live CBU-97	0	0	0
	Flare	Various	145	435	+200
	Gun Ammunition	30 MM	9,000	27,000	+200
	Grenade	40 MM	30,000	90,000	+200
	Mortar	60 MM	8,200	24,600	+200
	Mortar	81 MM	6,300	18,900	+200
	Small Arms Ammunition	.45 Caliber	20,000	60,000	+200
	Small Arms Ammunition	.50 Caliber	150,000	450,000	+200
	Small Arms Ammunition	5.56 MM	1,966,000	5,898,000	+200
	Small Arms Ammunition	7.62 MM	548,000	1,644,000	+200
	Small Arms Ammunition	9 MM	1,900,000	5,700,000	+200
	Chaff	Various	465 (bundles)	1,395 (bundles)	+200
	Smoke	Smoke Generator	110 (events)	330 (events)	+200
	Inert Bomb	Various	23	69	+200

TABLE 2-8

Alternative 1 and Alternative 2 Annual Expendable Quantities for the C-52 Complex
Test Area C-52 Complex REA

Location	Category	Expendable	Alternative 1 Quantity (Current Baseline)	Alternative 2 Quantity ^a (Mission Surge)	Percent Change
C-52N	Missile	Hellfire	10	30	+200
	Missile	AGM-65	10	30	+200
	Missile	AGM-176	20	60	+200
	Cluster Bomb	CBU-97	10	30	+200
	Bomb	MK-66 (1,000 lbs)	20	60	+200
	Bomb	250 lbs	50	150	+200
	Bomb	500 lbs	50	150	+200
	Bomb	1,000 lbs	50	150	+200
	Bomb	2,000 lbs	50	150	+200
	Rocket	2.75" rockets	500	1,500	+200
	Rocket	5" rockets	250	750	+200
	Flare	Various	5,360	16,080	+200
	Small Arms Ammunition	7.62 MM	20,000	60,000	+200
	Small Arms Ammunition	.50 Cal	10,000	30,000	+200
	Gun Ammunition	20 MM	50,000	150,000	+200
	Gun Ammunition	25 MM	80,000	240,000	+200
	Gun Ammunition	30 MM	10,000	30,000	+200
	Gun Ammunition	40 MM	15,000	45,000	+200
	Gun Ammunition	105 MM	5,000	15,000	+200
	Chaff	Various	435 (bundles)	1,305	+200
	Inert Bomb	Various	30	90	+200
C-52E	Guided Bomb Unit	GBU-12 (live)	350	1,050	+200
	Guided Bomb Unit	GBU-12 (inert)	121	363	+200
	Grenade	40 MM	27,000	81,000	+200
	Small Arms Ammunition	12 Gauge	4,000	12,000	+200
	Small Arms Ammunition	.50 Caliber	90,000	270,000	+200
	Small Arms Ammunition	5.56 MM	1,000,000	3,000,000	+200
	Small Arms Ammunition	7.62 MM	500,000	1,500,000	+200
	Hand Grenade	Hand Grenade	1,100	3,300	+200
	Inert Bomb	Various	29	87	+200

^a - A 200 percent mission surge increase in Alternative 1 annual expendable quantities.

Note: Navy EOD School expendables on C-52N and C-52W, CE-EOD expendables on C-52N, and Smoke Week expendables on C-52A under Alternative 2 are the same as those under Alternative 1 (see Tables 2-3 through 2-6).

2.3 Alternatives Considered but Eliminated from Detailed Analysis

During the interdisciplinary team meeting conducted at Eglin AFB to develop alternatives of the Proposed Action (see Section 2.2), consideration was given to an alternative that would combine Alternative 1 (No Action Alternative) with reasonably foreseeable TA C-52 Complex operations. The interdisciplinary team determined that such an alternative cannot be developed at this time as there are no reasonably foreseeable C-52 Complex operations other than those anticipated to be conducted in the near term, which are included as part of the baseline operations analyzed under Alternative 1. Baseline C-52 Complex operations under Alternative 1 are those currently conducted and those anticipated to be conducted in the near term, which include the remaining range operations of the Army's 7 SFG that have yet to reach final-state (full buildup) levels on the C-52 Complex. Full buildup of 7 SFG range operations on the C-52 Complex is imminent; therefore, the projected final-state levels of 7 SFG range operations on the C-52 Complex are included as part of the baseline analyzed under Alternative 1. For these reasons, an alternative that would combine Alternative 1 with reasonably foreseeable C-52 Complex operations was eliminated from detailed analysis in this REA.

2.4 Identification of the Preferred Alternative

The preferred alternative is Alternative 2 – implementation of TA C-52 Complex operations at a mission surge level, as described in Section 2.2.2.

Affected Environment and Environmental Consequences

This section addresses the “Affected Environment” and “Environmental Consequences” of the Proposed Action. The Affected Environment is the existing condition of each resource for which the alternatives of the Proposed Action are assessed. The Environmental Consequences are the potential impacts of the alternatives on each resource. The approach used to conduct the impact analysis in this REA is explained in Section 1.7.

3.1 Air Quality

3.1.1 Affected Environment

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. USEPA has established NAAQS for the following six principal pollutants, which are called criteria pollutants: carbon monoxide (CO), lead, nitrogen dioxide (NO₂), ozone, particulate matter (PM), and sulfur dioxide (SO₂). Areas that meet the air quality standard for the criteria pollutants are designated as being “in attainment.” Areas that do not meet the air quality standard for one of the criteria pollutants may be subject to the formal rule-making process and designated as being “in nonattainment” for that standard. Areas that currently meet the air quality standard but previously were classified as nonattainment are “in maintenance” for that standard. Walton County, the county in which the C-52 Complex is located, is currently classified as being “in attainment” for all criteria pollutants stipulated under the NAAQS.

Eglin AFB is a major source of criteria pollutants under the federal Title V Operating Permit Program, and currently operates under Title V Operation Permit 0910031-017-AV. This permit regulates specific major stationary sources of air emissions at Eglin AFB and requires that the emissions from these sources do not exceed major source values regulated under the Title V program. Mobile sources of air emissions at Eglin AFB are not regulated under the Title V permit but they represent a substantial percentage of Eglin’s total air emissions. Emissions from mobile sources at Eglin AFB are periodically inventoried as part of Eglin’s air quality management program. Eglin AFB emits hazardous air pollutants (HAPs) during fuel storage, painting, and other activities. HAP emissions at Eglin AFB are estimated on an annual basis, however, Eglin is not a major source of HAPs.

Greenhouse gases (GHGs) are gases that trap heat in the Earth’s atmosphere. They are emitted by both natural processes and human activities, and their accumulation in the atmosphere regulates temperature. GHGs include water vapor, carbon dioxide (CO₂), methane, nitrous oxide (N₂O), ozone, and several hydrocarbons and chlorofluorocarbons. To compare GHGs to each other, each GHG quantity is translated into a common unit called the “carbon dioxide equivalent” (CO_{2e}). There are no established thresholds or standards for greenhouse gases. However, on February 18, 2010, the Council on Environmental Quality (CEQ) released draft NEPA guidance on what may classify a proposed action’s greenhouse gas emissions as meaningful (CEQ, 2010). According to this draft CEQ guidance, a quantitative and qualitative assessment may be meaningful if the proposed action’s direct emissions are greater than 25,000 metric tons of CO_{2e}. This amount of greenhouse gas emissions is not a threshold of significance but a minimum level that would require consideration in NEPA documentation.

3.1.2 Environmental Consequences

Alternative 1 (No Action Alternative)

C-52 Complex operations have the potential to degrade air quality primarily via munitions and vehicle emissions.

The potential impacts that these emissions have on air quality were analyzed in the 2005 TA C-52 Complex EBD (U.S. Air Force, 2005) by comparing estimated maximum short-term C-52 air emissions to NAAQS and by comparing estimated total annual C-52 emissions to the total annual emissions reported for Walton County.

Maximum (worst-case) short-term air quality impacts from C-52 Complex operations were estimated using the “closed box assessment” (CBA). Under the CBA, emissions are estimated within a specific volume of airspace (closed box), which in the 2005 EBD was defined by the horizontal boundaries of the C-52 Complex and vertically from ground level to an altitude of 3,000 feet (ft) above sea level (ASL). The 3,000 ft ceiling was considered to be the maximum atmospheric mixing height, above which any pollutant generated would not contribute to increased pollutant concentrations at ground level. Emissions were assumed to be homogeneously mixed and contained within this defined volume of airspace. Air concentrations were estimated specifically for the following NAAQS criteria pollutants: CO, nitrogen oxides (NO_x), SO₂ and PM. The estimated concentrations of these pollutants in the defined volume of airspace were assumed to be representative of the maximum resulting ground-level concentrations. Under this assumption, the emission estimates are expected to indicate higher air quality impacts than estimates derived from a more structured air dispersion model; therefore, the CBA results provide a maximum impact scenario for comparison with NAAQS.

To provide an estimate of worst-case, short-term air emissions, all emission-generating C-52 activities predicted to be conducted in one year were considered to instead be conducted during the same 1-hour time period within the defined volume of airspace. Emissions were estimated for live munitions, vehicle exhaust, and vehicle dust. Munitions emissions include the combustion products of bombs, grenades, mortars, rockets, missiles, and ammunition, and the emissions of pyrotechnics (smokes/obscurants, chaff, and flares). To provide a conservative estimate of annual munitions emissions, the year having the highest activity level (selected from FY 1995 through FY 2003) was used for the calculations. Particulate matter was the only pollutant addressed for smokes and similar obscurants. Fog oil, which is emitted from smoke generators, is considered to have insignificant impacts on air quality as any effects are of very short duration (a few minutes). The impacts of fog oils and other emission products of smokes and obscurants on other resources are addressed in the respective analyses for those resources in this REA. Vehicle exhaust emissions were calculated using emission factors established by USEPA for various vehicle classes. Vehicle activity on the C-52 Complex was conservatively estimated by correlating vehicle activity (miles traveled) to the miles of roads that exist on the range. Vehicle dust (particulate matter) estimates were based on vehicle activity on unpaved roads and applicable variables, including percent surface silt content, mean vehicle weight, mean vehicle speed, and mean number of wheels per vehicle. The resulting 1-hour pollutant emissions from all activities were then summed and compared to the respective NAAQS (**Table 3-1**).

TABLE 3-1

Closed Box Assessment Results Reported in 2005 for C-52 Complex Operations*Test Area C-52 Complex REA*

Criteria Pollutant	Averaging Time	NAAQS (ppm)	Concentration Estimated in 2005 ^a (ppm)	Percent of NAAQS
CO	1-Hour	35	0.014	0.4
	8-Hour	9	0.01	0.1
NO _x	Annual	0.053	0.00009	0.17
SO ₂	3-Hour	0.5	0.00003	<0.1
	24-Hour	0.14	0.00002	<0.1
	Annual	0.03	0.000003	<0.1
PM ₁₀	24-Hour	150 µg/m ³	9.58 µg/m ³	6.4
	Annual	50 µg/m ³	1.91 µg/m ³	3.8

CO - carbon monoxide; NO_x - nitrogen oxides; SO₂ - sulfur dioxide; PM₁₀ - particulate matter with a diameter less than or equal to 10 microns; NAAQS - National Ambient Air Quality Standards; ppm - parts per million; µg/m³ - micrograms per cubic meter

^a - 2005 Test Area C-52 Complex Environmental Baseline Document (U.S. Air Force, 2005)

As indicated in **Table 3-1**, the worst-case air concentrations of all criteria pollutants resulting from C-52 Complex operations were estimated in 2005 to be well below the respective NAAQS. Although there are some differences in the current baseline activity and the activity analyzed in 2005, the worst-case criteria pollutant concentrations under Alternative 1 are expected to be well below NAAQS based on the CBA results. As discussed above, the 2005 CBA used munitions data from the year having the highest activity level to provide a conservative estimate of annual munitions emissions. Current baseline activity under Alternative 1 differs from the activity analyzed in 2005 primarily in the use of small arms ammunition, grenades, mortars, and bombs. Alternative 1 activity would involve greater amounts of small arms ammunition, grenades, and mortars than the activity analyzed in 2005, primarily due to the projected near-term training activities of the 7 SFG on C-52C and C-52E. As discussed previously, the 7 SFG relocated to Eglin AFB in 2011 and the projected final-state levels of 7 SFG training activities on the C-52 Complex are included as part of the baseline analyzed under Alternative 1. Although current baseline activity involves greater amounts of ammunition, grenades, and mortars, it involves lesser amounts of bombs than the activity analyzed in 2005. The amounts of other expendable types (large gun ammunition, missiles, smokes, and EOD detonations) are the same or comparable between the two activity levels. Vehicle emissions are expected to be comparable between the two activity levels. Vehicle use may be slightly higher under Alternative 1 as a result of 7 SFG training activity; however, overall vehicle use is not expected to increase significantly as 7 SFG ground maneuvering exercises would involve limited vehicle use. Given that the CBA compresses all annual emissions into a 1-hour scenario and does not account for air dispersion beyond the boundaries of the range, the worst-case emissions from current baseline C-52 operations during any period of time would be negligible in comparison to NAAQS.

In addition to assessing maximum short-term impacts from C-52 emissions, the 2005 TA C-52 Complex EBD also estimated total annual C-52 emissions and compared them to the respective pollutant emissions reported by the National Emissions Inventory (NEI) for Walton County. Under the provisions of the General Conformity Rule (40 CFR 51, Subpart W), federal actions occurring in areas designated as being “in non-attainment” or “in maintenance” are considered to have potential impacts on air quality if their total annual emissions for any criteria pollutant equal or exceed 10 percent of the ROI’s total annual emissions for the respective pollutant. As discussed in Section 3.1.1, Walton County is classified as being “in attainment” for all criteria pollutants; therefore, a conformity determination is not required for C-52 Complex operations. However, the criteria used under the General Conformity Rule is nonetheless considered in the assessment of impacts to air quality. Moreover, by comparing annual C-52 emissions to annual Walton County emissions, instead of to annual regional emissions as required by the General Conformity Rule, impacts on

air quality are more conservatively assessed. Estimated total annual C-52 emissions and total annual pollutant emissions reported by the NEI for Walton County are presented in **Table 3-2**.

TABLE 3-2

Total Annual Emissions Estimated in 2005 for C-52 Complex Operations*Test Area C-52 Complex REA*

Pollutant	C-52 Complex Emissions ^a (tons/year)	Total Walton County Emissions ^a (tons/year)	Percent of Walton County Emissions
CO	16.660	79,326	0.02
SO _x	0.101	490	0.02
NO _x	2.105	4,815	0.04
PM	23.954	9,680	0.25
VOCs	1.847	6,573	0.03

CO - carbon monoxide; NO_x - nitrogen oxides; SO_x - sulfur oxides; PM - particulate matter; VOCs – volatile organic compounds

^a - Estimated in the 2005 Test Area C-52 Complex Environmental Baseline Document (U.S. Air Force, 2005)

As indicated in **Table 3-2**, all C-52 Complex emissions estimated in 2005 were less than 0.3 percent of the respective Walton County emissions. C-52 emissions were as low as 0.02 percent of Walton County emissions for CO and sulfur oxides (SO_x) and as high as 0.25 percent of Walton County emissions for PM. As discussed above, the current baseline activity under Alternative 1 differs from the activity analyzed in 2005 in the use of some types of munitions, however, the two activity levels are relatively comparable with respect to overall annual munitions use and vehicle activity. Therefore, the total annual pollutant emissions under Alternative 1 are expected to not exceed 0.5 percent of current total annual Walton County emissions. At their expected generation levels, total annual C-52 emissions under Alternative 1 are expected to be below the 25,000 metric tons of CO_{2e} suggested per draft CEQ guidance as meaningful for greenhouse gas emissions.

Based on the analysis conducted, Alternative 1 would have a minor impact on air quality.

Alternative 2

Under Alternative 2, implementation of C-52 Complex operations at a mission surge level would result in a 200 percent increase in Alternative 1 annual mission activity and expendable quantities, except for expendables associated with EOD detonations and Smoke Week, which would remain at current baseline levels (see **Tables 2-7** and **2-8**). Under the conservative assumption that C-52 emissions would be 200 percent higher at a mission surge level, the associated worst-case criteria pollutant concentrations under Alternative 2 are expected to be well below NAAQS based on the analysis conducted for Alternative 1. Based on the analysis conducted for Alternative 1, the total annual pollutant emissions under Alternative 2 are expected to not exceed 1.5 percent of current total annual Walton County emissions. At their expected generation levels, total annual C-52 emissions under Alternative 2 are expected to be below the 25,000 metric tons of CO_{2e} suggested per draft CEQ guidance as meaningful for greenhouse gas emissions.

Based on the analysis conducted, Alternative 2 would have a minor impact on air quality.

3.2 Noise

3.2.1 Affected Environment

Noise can be simply defined as unwanted sound. The impact of noise is influenced by the characteristics of the noise, such as the sound level, frequency (pitch), and duration, as well as the characteristics of the receptor (e.g., a person or animal). Sound levels are measured on a logarithmic scale in decibels (dB). Sound measurement may be further refined through the use of frequency “weighting”, which accounts for the sensitivity of human hearing to certain frequencies. Human hearing is most sensitive to sound frequencies within the range of 1,000 and 4,000 hertz (Hz). A-weighted measurements emphasize this frequency range and are expressed in terms of A-weighted decibels (dBA). In noise analyses, A-weighting is used when

audible sound is the major concern, for example to assess noise generated by subsonic aircraft, construction, and traffic. C-weighted measurements do not attenuate lower frequencies and are expressed in terms of C-weighted decibels (dBC). C-weighting is used to assess low frequency, impulsive noise, such as the noise produced by explosions and sonic booms. Impulsive noise may be felt (overpressure) as well as heard. Low frequency, impulsive noise can also be measured in terms of peak sound pressure level (dBP), which is un-weighted and typically 22 to 25 dB higher than the C-weighting ($\text{dBC} = \text{dBP} - 25$).

The duration and frequency of noise events influence the overall impact of noise on receptors. Several metrics are used in noise assessments to account for these factors. For example, noise impacts on humans may be measured in terms of day-night average sound level (DNL), which is the noise level averaged over a 24-hour day-night period. This metric applies a 10-dB penalty to nighttime noise occurring between 10 pm and 7 am to account for the added intrusiveness of noise during these hours. C-weighted DNL (CDNL) is the 24-hour day-night averaged C-weighted sound level computed for areas subjected to low-frequency, impulsive noise. The yearly DNL is the yearly (365 days) day-night average sound level. The Air Force considers all land uses to be compatible with noise levels below 65 dB DNL, and noise-sensitive land uses such as residences to be conditionally compatible with noise levels between 65 and 70 dB DNL if the structure provides above-average noise attenuation. For impulsive noise, 62 dB CDNL is generally used as the threshold to determine residential land use compatibility and risk of human annoyance.

Sound exposure level (SEL) accounts for both the maximum sound level and the length of time a sound lasts. SEL provides a measure of the total sound exposure for an entire event compressed into 1 second. SEL is a good metric for assessing “single event” subsonic noise levels from overflying aircraft.

The effects of noise on humans include annoyance, sleep disturbance, and health impacts. A noise level of 140 dBP has been identified by the U.S. Occupational Safety and Health Administration (OSHA) as a maximum recommended unprotected exposure level necessary to prevent physiological damage to the human ear drum. A noise level of 115 dBP has been shown to cause minimal public annoyance and a low risk of noise complaints (USACHPPM, 2005). The effects of noise on wildlife are less well understood. Behavioral effects, such as startle response have been observed; however, direct physiological effects of noise on wildlife are difficult to measure in the field. Military testing and training activities are the primary sources of noise in the C-52 Complex. Impulsive noise from bombs and EOD detonations occurs regularly in the range.

3.2.2 Environmental Consequences

Alternative 1 (No Action Alternative)

Live Bombs

Of all baseline C-52 Complex operations under Alternative 1, air-to-surface bombing has the potential to generate the highest “single-event” impulsive noise levels. Historically, air-to-surface bombing has occurred primarily on C-52N and to a lesser extent on C-52C. Live Guided Bomb Unit (GBU)-12s are planned to be dropped on C-52E by the Joint Strike Fighter (JSF) aircraft that are in the process of bedding down at Eglin AFB and, therefore, are included under the air-to-surface bombing activity under Alternative 1. The types and quantities of live bombs that would be dropped on C-52N and C-52E under Alternative 1 are presented in **Table 2-2**. These bomb types range in size from 250 pounds (lbs) to 2,000 lbs. They produce considerably higher noise levels than any other munition type expended on the C-52 Complex due to their high NEW, which ranges from approximately 100 lbs NEW for the 250-lb bomb class and up to 945 lbs NEW for the 2,000-lb bomb class. In comparison, the types of live missiles that are fired from aircraft onto C-52N have considerably lower NEWs, e.g., the NEW of a hellfire missile is approximately 35 lbs. EOD detonations also have the potential to generate high single-event impulsive noise, depending on the NEW of the item detonated (further discussed below).

The current baseline quantities of live bombs expended on the C-52 Complex are higher than the previous baseline (FY 1995) quantities analyzed in the 1999 C-52 Complex PEA (U.S. Air Force, 1999) (see **Table 2-2**). Since 1995, overall bombing activity on the C-52 Complex, primarily on C-52N, has been higher, with the

highest activity having occurred in 2000 when a total of 653 live bombs were dropped on C-52N (U.S. Air Force, 2005). Most of the bombs dropped in 2000 were 500-lb bombs and were associated with the Navy Composite Training Unit Exercise (COMPTUEX [formerly COM2EX]) that occurred over a 2-week period during that year. The potential noise impacts from the proposed 2000 Navy COMPTUEX exercise were analyzed in the 2000 *U.S. Navy COM2EX and JTFEX Training Final Environmental Assessment* (U.S. Air Force, 2000). This EA analyzed the potential effects of both single-event and time-averaged noise levels on the public. Noise levels from the exercise were predicted using the Noise Assessment and Prediction System (NAPS) noise model; noise levels were modeled under a scenario of favorable weather conditions. Based on the noise analysis, peak sound pressure levels of 140 dBP, 120.5 dBP, and 112.5 dBP were predicted to occur approximately 0.5 miles, 2.3 miles, and 4.4 miles, respectively, from C-52N during the exercise. As discussed in Section 3.2.1, noise levels of 140 dBP and 115 dBP are generally used as the “single event” noise thresholds for human hearing protection and public annoyance, respectively. Based on a review of 2014 land use maps, the nearest residential communities to C-52N are located in the Choctaw Beach community, approximately 6 miles to the south, and those located near the City of Niceville, approximately 7 miles to the southwest. Therefore, the analysis determined that the exercise would have no hearing loss impacts on the public. The 112.5 dBP noise contour was determined by the analysis to equal 62 dB CDNL, which is the 24-hour day-night averaged impulsive noise level generally used as the “continuous” noise threshold to determine residential land use compatibility and risk of human annoyance (see Section 3.2.1). Based on the analysis, peak single-event noise levels were predicted to be below 112.5 dBP and 24-hour day-night averaged noise levels were predicted to be below 62 dB CDNL in the nearest residential communities during the exercise under favorable weather conditions. The study acknowledged that unfavorable weather conditions, such as high winds and/or temperature inversions, would increase the potential for adverse noise impacts on the public. Real-time modeling of weather conditions was conducted during the exercise to manage and prevent adverse noise impacts.

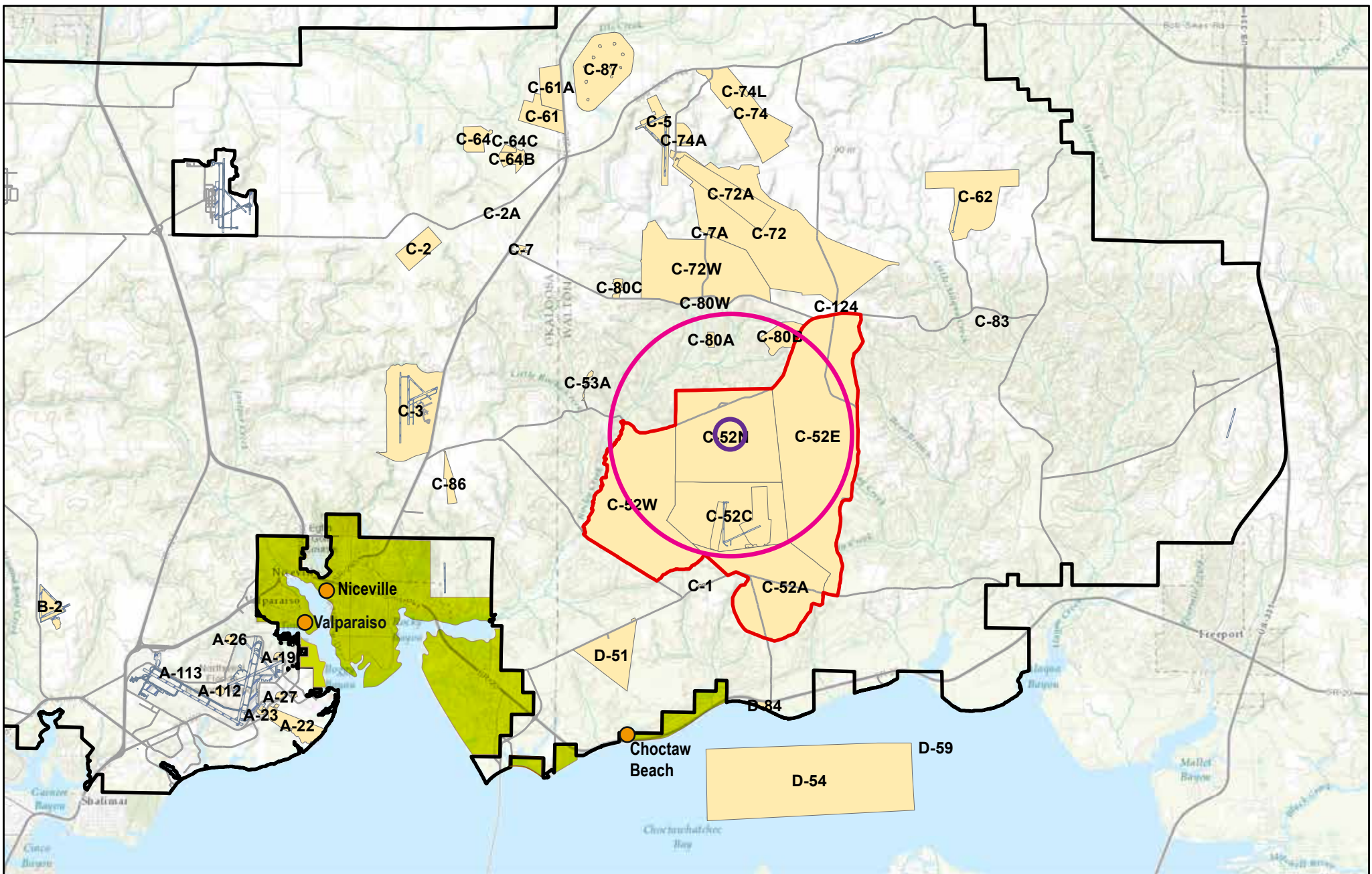
Based on the noise analysis conducted for the 2000 Navy COMPTUEX exercise, current baseline live bombing activity on C-52N under favorable weather conditions is not expected to result in excessive noise annoyance in the nearest residential communities. As discussed above, the 62 dB CDNL contour for the COMPTUEX exercise was predicted to be 1.6 miles from the nearest residential community (Choctaw Beach). The total number of bombs that would be dropped annually on C-52N under Alternative 1 (230 bombs) is slightly less than the total number of bombs considered in the noise analysis conducted for the COMPTUEX exercise (250 bombs). Under Alternative 1, 56 percent of the bombs would be 500 lbs or less in size, and the remainder would be greater than 500 lbs in size; all the bombs analyzed for the COMPTUEX exercise were 500-lb bombs. On average, the bomb size under the scenarios are comparable. However, under the COMPTUEX exercise scenario, all bombs were considered to be dropped within a 2-week period. Given that the annual expenditure of live bombs under Alternative 1 would not occur within 2 weeks, but rather would be more spread out throughout the year, associated time-averaged noise impacts from live bombing on C-52N under Alternative 1 are expected to be less than those predicted for the COMPTUEX exercise. The live GBU-12s planned to be dropped by the JSF aircraft on C-52E would be 500-lb bombs. The distances from C-52E and C-52N to the nearest residential communities are comparable and as on C-52N, bombing on C-52E would be spread out throughout the year. Therefore, air-to-surface bombing activity on C-52E under Alternative 1 is not expected to have adverse time-averaged noise impacts on the public. Unfavorable weather conditions would increase the potential for adverse noise impacts to result from live bombing under Alternative 1. Unfavorable weather conditions with respect to noise impacts include high winds and temperature inversions. A temperature inversion occurs when warmer air is above cooler air, which creates atmospheric “stability” and inhibits vertical mixing. Temperature inversions usually occur at night or early morning. Almost every morning, ground-based inversions occur on Eglin AFB and break during the morning with surface heating (U.S. Air Force, 2005). Strong winds and temperature inversions can propagate noise levels beyond distances that the noise levels would otherwise occur under favorable weather conditions. Favorable weather conditions with respect to noise impacts can be easily identified using meteorological data that is routinely collected by Eglin’s Weather Office to support testing/training operations.

Under Alternative 1, the explosion of a 2,000-lb bomb, which is the largest live bomb that would be dropped on the C-52N, would have the greatest potential single-event noise impact on the public. A noise impact analysis was conducted in the 1999 TA C-52 Complex PEA (U.S. Air Force, 1999) for the explosion of a MK-83, which is a 1,000-lb bomb with 445 lbs NEW. The analysis predicted that under favorable weather conditions, the associated 115 dBP contour would be largely contained within the boundaries of the C-52 Complex and would be approximately 3 miles from the nearest residential communities in Choctaw Beach and approximately 4 miles from the nearest residential communities near Niceville (**Figure 3-1**). The analysis predicted that under unfavorable weather conditions (high winds and temperature inversion), 115 dBP noise levels could potentially be propagated outside the boundaries of Eglin, thereby, resulting in public annoyance. However, noise levels of 140 dBP (hearing loss threshold) were predicted to be contained well within the boundaries of Eglin under unfavorable weather conditions.

Noise modeling has not been conducted specifically for a 2,000-lb bomb explosion on the C-52 Complex. However, noise modeling (NAPS model) was conducted in the 2005 TA C-52 Complex EBD (U.S. Air Force, 2005) for a 3,000-lb NEW detonation on C-52N under favorable weather conditions (unfavorable weather conditions were not modeled) (**Figure 3-2**). As shown on **Figure 3-2**, the noise model predicted that a sound pressure level of 115 dBP would be experienced throughout much of Choctaw Beach and in a few residential communities near Niceville. Noise levels of 140 dBP (hearing loss threshold) and 127 dBP were predicted to be contained well within the boundaries of Eglin. Based on the results of this noise analysis, it is expected that an explosion of a 2,000-lb bomb on C-52N under favorable weather conditions would not result in noise levels of 115 dBP reaching the nearest residential communities. The NEW of 2,000-lb bombs range from 535 lbs NEW for the 2,000-lb BLU-109 up to 945 lbs NEW for the 2,000-lb MK-84 (U.S. Army Defense Ammunition Center, 2009). Therefore, the highest NEW of a 2,000-lb bomb is more than three times less than the 3,000-lb NEW detonation that was modeled. It is expected that the 115 dBP contour for a 2,000-lb bomb explosion on C-52N under favorable weather conditions would lie somewhere between the 115 dBP contour of the 1,000-lb bomb explosion shown on **Figure 3-1** and the 115 dBP contour of the 3,000-lb NEW detonation shown on **Figure 3-2**, and would not extend into the nearest residential communities. Under unfavorable weather conditions, an explosion of a 2,000-lb bomb on C-52N has the potential to result in 115 dBP noise levels in nearby residential communities; the overall potential for 140 dBP noise levels to be experienced outside Eglin under unfavorable weather conditions is considered to be low.

Gunnery and Small Arms

Gunnery operations on the C-52 Complex involve the firing of live gun ammunition from aircraft at designated targets. The gun ammunition used ranges in size from 20 millimeters (mm) up to 105 mm. Air-to-surface gun testing/training occurs primarily on C-52N, and to a lesser extent, on C-52C. Small arms training on the C-52 Complex involves the firing of various hand-held arms by personnel on the ground. Small arms training under Alternative 1 would occur primarily on C-52C and C-52E, and to a much lesser extent, on C-52N. The current baseline quantities of live gun ammunition fired onto the C-52 Complex are higher than the previous baseline (FY 1995) quantities (see **Table 2-2**), but are comparable to annual quantities fired during the late 1990s and 2000s (U.S. Air Force, 2005). The current baseline quantities of small ammunition fired on the C-52 Complex are considerably higher than previous annual quantities (see **Table 2-2**), primarily due to the projected near-term training activities of the 7 SFG on C-52C and C-52E. As discussed previously, the 7 SFG relocated to Eglin AFB in 2011 and the projected final-state levels of 7 SFG training activities on the C-52 Complex are included as part of the baseline analyzed under Alternative 1.

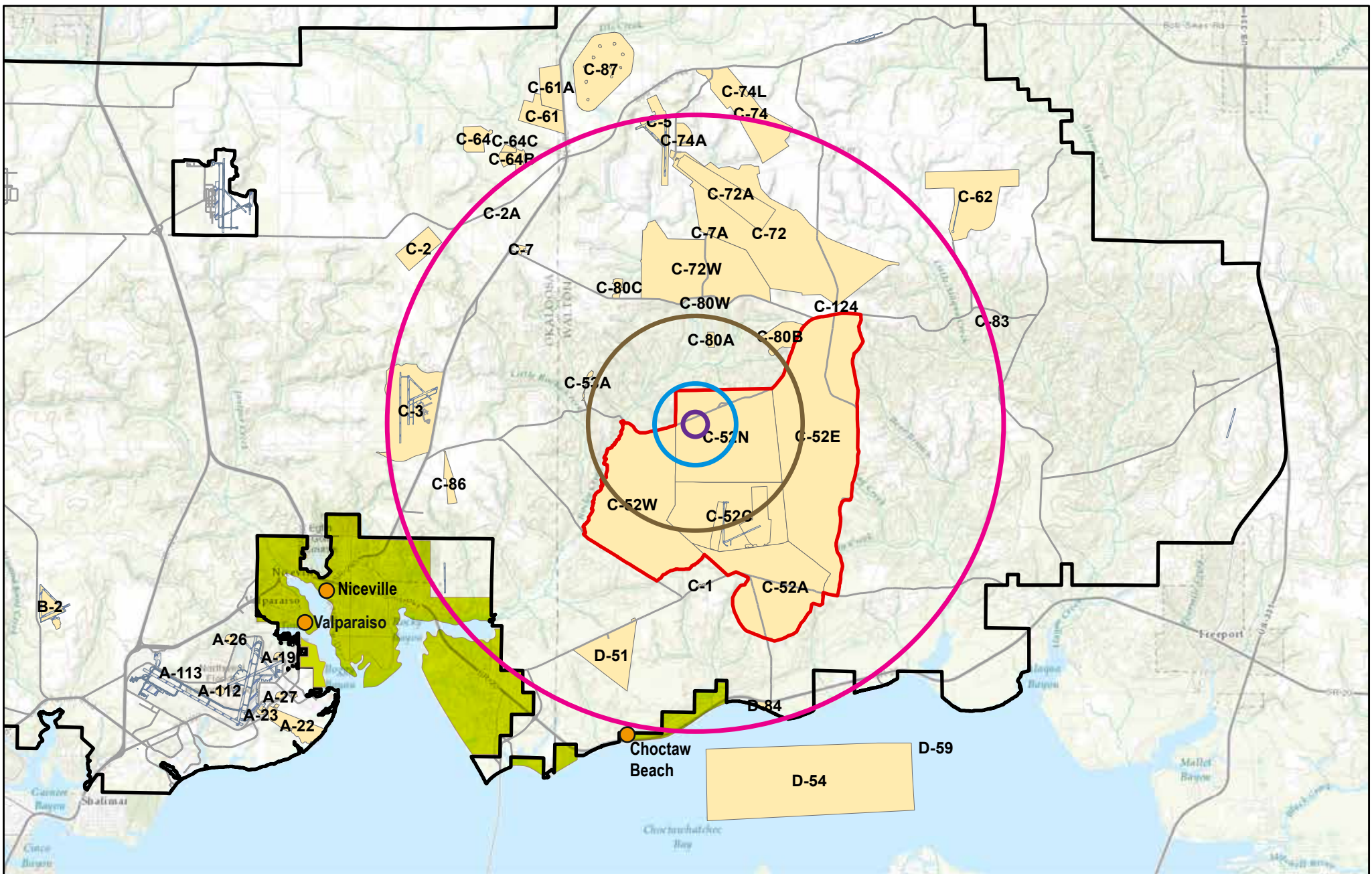


Legend

- Road
- Eglin AFB
- Test Area
- C-52 Complex
- 140 dB
- 115 dB
- Residential

Noise Contours: Test Area C-52 Complex Programmatic Environmental Assessment (U.S. Air Force, 1999)

FIGURE 3-1
Noise Contours for Explosion of a 1,000 lb MK-83 Bomb (NEW = 445 lbs)
During Favorable Weather Conditions
Test Area C-52 Complex REA



Legend

- Road
- 154 dB
- Residential
- Eglin AFB
- 140 dB
- Test Area
- 127 dB
- C-52 Complex
- 115 dB

Noise Contours: Test Area C-52 Complex Environmental Baseline Document (U.S. Air Force, 2005)

FIGURE 3-2
Noise Contours for 3,000 lb NEW Detonation
During Favorable Weather Conditions
Test Area C-52 Complex REA

The largest air-to-surface gun ammunition used, which is the 105-mm, has a maximum NEW of approximately 8 lbs; the NEW of small arms ammunition is much smaller than the NEW of gunnery ammunition. Therefore, the noise levels produced by the firing of air-to-surface guns and hand-held small arms on the C-52 Complex are not high enough to have potential hearing loss impacts on the public. To assess potential continuous (time-averaged) noise impacts from gunnery and small arms activity on the C-52 Complex, the noise analysis in the 2013 Air and Ground Gunnery REA (U.S. Air Force, 2013a) was evaluated. In the Air and Ground Gunnery REA, the Alternative 2 activity for TA A-77 involved the firing of 908,544 rounds of live air-to-surface gun ammunition and 7,598,268 rounds of live small arms ammunition, as well as the use of bombs, missiles, smokes, and other munitions. Based on the noise modeling (NAPS model) conducted, the associated 62 dB CDNL radius was predicted to extend approximately 5 miles from A-77 under favorable weather conditions. In comparison, current baseline gunnery and small arms activity on the C-52 Complex under Alternative 1 would be considerably less. For example, the quantities of gunnery rounds fired on C-52C and C-52N would be approximately 1 percent and 3 percent, respectively, of the quantities fired on A-77. The quantities of small arms rounds fired on C-52C, C-52N, and C-52E would be approximately 60 percent, 2 percent, and 21 percent, respectively, of the quantities fired on A-77. Although a direct correlation cannot be drawn from the noise analysis conducted for A-77, it can be reasonably expected that the gunnery and small arms activity under Alternative 1 would not result in excessive noise annoyance in the nearest residential communities, provided that the activity is conducted under favorable weather conditions. Gunnery and small arms activity on C-52N is expected to have no potential to result in adverse noise annoyance impacts on the public based on the overall activity level and the distances of the nearest communities from the range. Given that C-52C and C-52E are located further to the south and the activity levels on these ranges would be higher, the potential for annoyance impacts would be greater. However, potential noise annoyance is expected to be limited to Choctaw Beach; the potential for noise annoyance to occur in Niceville is considered to be relatively low. Based on the analysis conducted, overall gunnery and small arms activity under Alternative 1 is expected to have minor noise impacts on the public. Potential noise impacts would be limited to annoyance and would be minimized by conducting the activity during favorable weather conditions to the extent practicable.

EOD Detonations

EOD detonations are conducted by the Navy EOD School on C-52N and C-52W, and by CE-EOD on C-52N. The quantities of detonations conducted by the Navy EOD School on C-52N and C-52W have varied considerably from year to year. Current baseline activity under Alternative 1 is based on FY 2012 data and is comparable to the activity level of certain previous years with respect to the total number of annual detonations (U.S. Air Force, 2005). As indicated in **Table 2-3**, the highest NEW detonations on C-52N under Alternative 1 are 330 lbs NEW (MK37 torpedo) and 184.11 lbs NEW (MK-82 bomb). The other detonations on C-52N have much smaller NEWs. The detonations on C-52W involve ammunition and other small items and, therefore, have much smaller NEWs than detonations on C-52N as (see **Tables 2-4** and **2-5**). The predicted noise contours under favorable weather conditions for a 445-lb NEW detonation (explosion of a 1,000-lb MK-83 bomb) on C-52N and a 3,000-lb NEW detonation on C-52N are shown on **Figure 3-1** and **Figure 3-2**, respectively. As shown on **Figure 3-1**, under favorable weather conditions, the 115 dBp contour of a 445-lb NEW detonation would be largely contained within the boundaries of the C-52 Complex and would be well outside the nearest residential communities. As shown on **Figure 3-2**, under favorable weather conditions, the 115 dBp noise contour of a 3,000-lb NEW detonation would extend into much of Choctaw Beach and some communities near Niceville. Noise levels of 140 dBp (hearing loss threshold) were predicted to be contained well within the boundaries of Eglin under both detonation scenarios. Based on the noise modeling conducted for these detonations, current baseline EOD detonations under Alternative 1 are not expected to have hearing loss or noise annoyance impacts on the public, provided that the larger detonations are conducted under favorable weather conditions. The Navy EOD School coordinates with Eglin's Weather Office prior to larger detonations to determine if weather conditions are favorable.

Other Noise Sources

Other activities under Alternative 1 that would generate noise on the C-52 Complex include ground maneuvering exercises and use of mortars, grenades, and smokes. Ground maneuvering exercises would involve troop (primarily 7 SFG) movement on foot; use of vehicles during ground maneuvering exercises would be limited. The noise levels that would be generated by ground maneuvering exercises would be very low and would have no potential to impact the public. Under Alternative 1, mortars and grenades would be used during 7 SFG ground training on C-52C, and the use of smokes would occur on C-52A. The NEWs of mortars range from approximately 1 lb to 10 lbs and the NEWs of grenades are less than 1 lb (U.S. Army Defense Ammunition Center, 2009). The NEWs of smokes are highly variable depending on the smoke type, but in general they are low. Based on the low NEWs of mortars, grenades, and smokes, and the relatively low quantities that would be expended annually, their use on the C-52 Complex under Alternative 1 is not expected to result in adverse noise impacts on the public.

Based on the analysis conducted, Alternative 1 would have a moderate noise impact on the public.

Alternative 2

Under Alternative 2, implementation of C-52 Complex operations at a mission surge level would result in a 200 percent increase in Alternative 1 annual expendable quantities, except for those associated with EOD detonations and Smoke Week, which would remain at current baseline levels (see **Table 2-8**). Although the annual quantities of munitions would increase under Alternative 2, there would be no change in the types of munitions used. Under Alternative 2, an explosion of a 2,000-lb bomb on C-52N would still represent the greatest potential single-event noise impact on the public. Based on the analysis conducted for Alternative 1, an explosion of a 2,000-lb bomb on C-52N under favorable weather conditions would not result in noise levels of 115 dBP reaching the nearest residential communities. Under unfavorable weather conditions, an explosion of a 2,000-lb bomb on C-52N has the potential to result in 115 dBP noise levels in nearby residential communities; the overall potential for 140 dBP noise levels to be experienced outside Eglin under unfavorable weather conditions is considered to be low. Potential public annoyance would be minimized by conducting live bombing during favorable weather conditions to the extent practicable.

Alternative 2 would involve greater live bombing, gunnery, and small arms activity and, therefore, would have the potential to have greater continuous (time-averaged) noise impacts on the public. It is possible that under mission-surge live bombing, gunnery, and small arms activity on the C-52 Complex, associated time-averaged noise levels exceeding 62 dB CDNL could be experienced in the nearest residential communities. Based on the noise levels expected to result, noise impacts on the public under Alternative 2 are not expected to be significantly adverse. The noise levels that would be generated under Alternative 2 would not cause hearing loss; additional impacts over Alternative 1 are expected to be limited to a greater level of public annoyance. Munitions use under Alternative 2 would be conducted during favorable weather conditions to the extent practicable to minimize the potential for public annoyance.

Based on the analysis conducted, Alternative 2 would have a moderate noise impact on the public.

3.3 Soils

3.3.1 Affected Environment

Soil consists of varying amounts of mineral particles and organic matter. It serves as a medium for plant growth and water storage, and as habitat for certain types of organisms. Soils are formed by numerous physical, chemical, and biological processes, which include weathering of parent material, accumulation of organic matter, and biochemical leaching or reduction of minerals. Soil erosion is the process by which soil is removed from a given location by wind or water flow, and then transported to other locations.

The Eglin AFB Integrated Natural Resources Management Plan (INRMP) (U.S. Air Force, 2012) provides information on the primary soil types that occur on Eglin AFB. The soils on Eglin AFB originated from the Citronelle Formation as well as from alluvium deposition from low lying areas (U.S. Air Force, 2012). The

majority of soils on Eglin AFB and on the C-52 Complex belong to the Lakeland soil association. Lakeland soils are excessively drained and sandy to a depth of 80 inches or more. The Dorovan-Pamlico and Bonifay-Troup-Dothan soil associations also occur on the C-52 Complex. The Dorovan-Pamlico association consists of mucks that are very poorly drained and composed of more than 20 percent organic matter; on the C-52 Complex, these soils occur in floodplain areas on C-52E, C-52N, and C-52W. The Bonifay-Troup-Dothan association consists of sands and loamy sands, and occurs primarily in the northern part of C-52E.

3.3.2 Environmental Consequences

Alternative 1 (No Action Alternative)

The primary means by which C-52 Complex operations could potentially impact soils is via hazardous materials released during munitions and pyrotechnics use. The use of some munitions on the C-52 Complex, such as bombs, results in ground disturbance and, therefore, direct physical impacts to soils. Troop movement and vehicle use also may physically disturb soils. Physical disturbance to soils from these activities may indirectly increase the potential for soil erosion. Soil erosion on the C-52 Complex is minimized via implementation of best management practices (BMPs), which include limiting activities in areas considered to have high erosion potential (e.g., on steep slopes), maintaining unpaved roads in accordance with Eglin's range road maintenance requirements, limiting vehicle use to existing roads, and confining testing and training activities to designated areas authorized for the activities.

Ordnance, Chaff, and Flares

The 2005 TA C-52 Complex EBD (U.S. Air Force, 2005) used the Seasonal Soil Compartment Model (SESOIL) Version 3.1 (SAIC, 2003) to analyze the types and amounts of chemical constituents of munitions that accumulate in soils on the C-52 Complex. DoD's Toxic Release Inventory-Data Delivery System was used to quantify the chemical constituents for input into the SESOIL model. The cumulative amounts of chemical constituents from ordnance (live bombs, missiles, gunnery ammunition, and small arms ammunition), chaff, and flares on C-52C, C-52N, and C-52W resulting over a period of 10 consecutive years were modeled. To provide a conservative estimate of annual chemical quantities, the years having the greatest quantities of each munition type (selected from FY 1995 through FY 2003) were used for the model. Inert munitions, which are manually removed from the C-52 Complex annually, were not included in the chemical load. The predicted concentrations of munitions constituents in soil on C-52C, C-52N, and C-52W were then compared to USEPA human-health risk (soil-industrial) Regional Screening Levels (RSLs), USEPA Ecological Soil Screening Benchmarks (SSBs), and estimated background concentrations (**Table 3-3**; current RSLs and SSBs are listed in the table).

TABLE 3-3

Predicted Concentrations of Munitions Constituents in Soil on the C-52 Complex Resulting from 10 Years of Accumulation

Test Area C-52 Complex REA

Constituent	Soil Background ^a (mg/kg)	Human Health RSL ^b (mg/kg)	Ecological SSB ^c (mg/kg)	C-52C (mg/kg)	C-52N (mg/kg)	C-52W (mg/kg)	Maximum Soil Migration Depth (meters)
Aluminum	7,500	990,000	50	0.1647	19	0.1098	0.1
Barium	22	190,000	165	0.0722	0.0467	<0.0001	3.1
Cadmium	0.91	800	1.6	0.0150	0.2758	<0.0001	1.9
Copper	14	41,000	40	0.0227	27	0.6816	3.6
Lead	54	800	50	0.0001	1	0.0137	0.2
RDX	No data	24	---	<0.0001	<0.0001	<0.0001	N/A
TNT	No data	79	---	<0.0001	0.0137	<0.0001	14.3
Zinc	45	310,000	50	0.0123	11	0.2830	0.2

mg/kg – milligrams per kilogram

RSL – Regional Screening Level

SSB – Soil Screening Benchmark

a - Guidelines for Chemicals of Potential Concern (COPC) Identification, Revision 3. Prepared by Earth Tech, Fort Walton Beach, FL. Prepared for Eglin AFB, Air Armament Center, Air Force Materiel Command, Eglin AFB, FL. February 2000.

b - USEPA Region 3 human-health risk (soil-Industrial) Regional Screening Level (USEPA, 2014)

c - USEPA Region 4 Ecological Soil Screening Benchmark (Risk Analysis Information System, 2014)

Source: 2005 Test Area C-52 Complex Environmental Baseline Document (U.S. Air Force, 2005)

As indicated in the **Table 3-3**, the predicted concentrations of all munitions constituents in soil on C-52C, C-52N, and C-52W were well below the respective human-health risk and ecological screening criteria. All predicted constituent concentrations were below the estimated background concentrations, except copper at C-52N. These results indicate that accumulation of the identified munitions constituents in soil on the C-52 Complex has little potential to degrade soil quality to a level that would adversely impact human health or ecological receptors. Current baseline activity under Alternative 1 is relatively comparable to the activity analyzed in 2005 with respect to overall annual munitions use. The primary difference between the munitions use analyzed in 2005 and the munitions use proposed under Alternative 1 is the quantity of small arms ammunition. The quantities of small arms ammunition that would be fired on the C-52 Complex under Alternative 1 are considerably higher than the quantities analyzed in 2005 primarily due to the projected near-term training activities of the 7 SFG on C-52C and C-52E. As discussed previously, the 7 SFG relocated to Eglin AFB in 2011 and the projected final-state levels of 7 SFG training activities on the C-52 Complex are included as part of the baseline analyzed under Alternative 1. The primary constituents of small arms ammunition that could potentially impact soils are lead and copper. Lead and copper soil impacts resulting from small arms ammunition were analyzed in the 2013 Air and Ground Gunnery REA (U.S. Air Force, 2013a). In the Air and Ground Gunnery REA, the proposed activity for the target berm at TA B-75 involved the firing of 16,710,123 rounds of small arms ammunition. The soil concentrations of lead and copper at the TA B-75 target berm resulting from this quantity of ammunition were predicted to be 49.6 mg/kg and 16.06 mg/kg, respectively. These predicted soil concentrations of lead and copper are well below the respective human-health risk screening criteria and below the ecological screening criteria (see **Table 3-3**). In comparison, current baseline small arms activity under Alternative 1 would involve the firing of 4,584,000 rounds of small arms ammunition on C-52C, which is approximately 27 percent of the quantity of rounds analyzed for B-75, and the firing of 1,594,000 rounds of small arms ammunition on C-52E, which is approximately 9 percent of the quantity of rounds analyzed for B-75. Given that current baseline quantities of small arms ammunition would be considerably less than the quantities analyzed for B-75, the resulting lead and copper soil concentrations on C-52C and C-52E under Alternative 1 are expected to be below the respective human-health and ecological screening criteria. Based on this above analysis, expenditure of ordnance, chaff, and flares under Alternative 1 is not expected to degrade soil quality to a level that would adversely impact humans or ecological receptors.

Although flares were included in the SESOIL model, soil concentrations of magnesium, which is the primary combustion product of all flare types, were not estimated by the model. However, associated magnesium deposition on soil was estimated separately based on the maximum annual expenditure of flares, which was determined to be 44,560 flares per year. The expenditure of this number of flares over C-52N and C-52C was estimated to result in approximately 0.11 lbs of magnesium residue per acre. In comparison, agricultural applications of magnesium as a soil nutrient can be as high as 10 lbs per acre. Total annual flare use under Alternative 1 would be 5,505 flares per year and, therefore, would result in much lower magnesium deposition on soils than estimated in 2005.

Smokes and Obscurants

Smokes and obscurants have historically been used on C-52A and C-52C. Annual use of smokes and obscurants during testing/training on the C-52 Complex has decreased since the previous analyzed baseline year (FY 1995). Smoke Week events were conducted on C-52A on a regular annual basis during the early to mid 1990s, but only once since then, in 2005. The baseline quantities of smokes and Smoke Week expendables analyzed in the 1999 TA C-52 Complex PEA (U.S. Air Force, 1999) represent the current baseline

quantities under Alternative 1. Therefore, the potential impacts that current baseline quantities of smokes and obscurants would have on soils are the same as those determined by the analysis conducted in 1999.

Fog oil is a type of obscurant emitted from smoke generators. When heated in a smoke generator, fog oil is vaporized and emitted as a smoke cloud. The activity level analyzed in 1999 included a total of 1,424 gallons of fog oil emitted during Smoke Week XV and a total of 3,300 gallons of fog oil emitted during testing/training operations (110 smoke generator events; 30 gallons/event) (see **Tables 2-2** and **2-6**). Once emitted from a smoke generator, fog oil aerosols cool very rapidly and deposit onto the ground surface. Fog oil that is deposited on soil surfaces is relatively short-lived. Much of the fog oil evaporates relatively quickly (up to 90 percent within one week) and is also broken down by oxidation, photolysis, and microbial degradation (Driver et al., 1993). Soil sampling indicated that fog oil use during Smoke Weeks XIII and XIV did not increase hydrocarbon concentrations in surrounding soils (U.S. Air Force, 1999). Based on the rapid degradation rate of fog oil in soils, the analysis conducted in 1999 determined that baseline quantities of fog oil at that time would have no significant effect on soils.

Phosphorus smokes include red phosphorus, white phosphorus, and plasticized red or white phosphorus. These smokes can be emitted by either smoke grenades or smoke munitions that are detonated with a small amount of explosive. The activity level analyzed in 1999 included a total of 1,215 lbs of white phosphorus and 1,755 lbs of red phosphorus used during Smoke Week XV, and a total of 50 smoke pots that were likely phosphorus-based used during testing/training operations (see **Tables 2-2** and **2-6**). Once deposited on soils, the polyphosphoric acids in the phosphorus aerosol will dissociate at normal soil pH. The analysis conducted in 1999 determined that baseline quantities of phosphorus smoke at that time would have no significant effect on soils.

Metal materials used as obscurants include aluminum, aluminum-coated glass, brass flake, and nickel-coated carbon. The activity level analyzed in 1999 included a total of 900 lbs of aluminum, 67 lbs of aluminum-coated glass, 4,915 lbs of brass flake, and 67 lbs of nickel-coated carbon used during Smoke Week XV, and a total of 544 lbs of brass flake used during testing/training operations (544 smoke grenades; 1 lb/grenade) (see **Tables 2-2** and **2-6**). Based on the results of soil sampling following previous Smoke Weeks or estimations of resulting soil concentrations, the analysis conducted in 1999 determined that baseline quantities of these metal obscurants at that time would have no significant effect on soils.

Inert materials used as obscurants include graphite, carbon fiber, dust (silica), and kaolin. The activity level analyzed in 1999 included a total of 9,752 lbs of graphite, 452 lbs of carbon fiber, 2,500 lbs of dust (silica), and 1,800 lbs of kaolin used during Smoke Week XV (see **Table 2-6**), and a estimated total of 20,000 lbs of graphite used during testing/training operations. All these materials are chemically inert; therefore, the analysis conducted in 1999 determined that baseline quantities of these inert obscurants at that time would have no significant effect on soils.

Based on the analysis conducted, Alternative 1 would have a minor impact on soils.

Alternative 2

Under Alternative 2, implementation of C-52 Complex operations at a mission surge level would result in a 200 percent increase in Alternative 1 annual mission activity and expendable quantities, except for expendables associated with EOD detonations and Smoke Week, which would remain at current baseline levels (see **Tables 2-7** and **2-8**). Increased munitions use and ground maneuvering activity under Alternative 2 would increase the potential for soil erosion. However, provided that the soil erosion measures identified in Section 4 are implemented, soil erosion impacts under Alternative 2 are not expected to be significantly adverse.

Although the annual quantities of munitions would increase under Alternative 2, there would be no change in the types of munitions used. Based on the analysis conducted for Alternative 1, a mission-surge increase in ordnance, chaff, and flares is not expected to degrade soil quality to a level that would adversely impact human health or ecological receptors. Given how low the predicted concentrations of all munitions

constituents in soil are under Alternative 1, mission-surge activity is not expected to increase the rate of accumulation of the constituents to levels that would adversely impact soil quality. Under Alternative 2, no constituent is expected to exceed human-health screening criteria and only copper on C-52N is considered to have the potential to exceed ecological screening criteria. Mission-surge small arms activity under Alternative 2 would involve the firing of 13,752,000 rounds of small arms ammunition on C-52C, which is approximately 82 percent of the quantity of rounds analyzed for B-75, and the firing of 4,782,000 rounds of small arms ammunition on C-52E, which is approximately 29 percent of the quantity of rounds analyzed for B-75. Given that mission-surge quantities of small arms ammunition would be less than the quantities analyzed for B-75, the resulting lead and copper soil concentrations on C-52C and C-52E under Alternative 2 are expected to be below the respective human-health and ecological screening criteria. Smoke Week expendables would remain at the current baseline level under Alternative 2. Based on how minor overall smoke/obscurant impacts to soil are under Alternative 1, the additional quantities of smokes and obscurants that would be used during testing/training under Alternative 2 are not expected to have significantly adverse impacts on soil.

Based on the analysis conducted, Alternative 2 would have a minor impact on soils.

3.4 Water Resources

3.4.1 Affected Environment

Water resources on the C-52 Complex include wetlands, floodplains, surface water, and groundwater. The Proposed Action was determined to have no potential to affect floodplains; therefore, this resource has been eliminated from detailed analysis in this REA (see Section 1.7.2).

The U.S. Army Corps of Engineers (USACE) and USEPA jointly define wetlands as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. There are approximately 1,441 acres of wetlands on the C-52 Complex; much of the total wetland area exists on C-52E and C-52W (U.S. Air Force, 2005). Dominant wetland types on the C-52 Complex include floodplain swamps and marshes, depression marshes, and seepage slopes. The 96 CEG/CEIEA has primary responsibility for wetland protection, including evaluation of potential wetland impacts by proposed actions, at Eglin AFB. The Eglin AFB INRMP (U.S. Air Force, 2012) includes guidance on the management and protection of wetlands at Eglin AFB.

Streams are the primary surface water bodies on the C-52 Complex. There are also a few small, seasonally inundated ponds on the range. All streams on C-52C and C-52E, and most streams on C-52N are located within the Basin Creek Watershed, which drains into Basin Bayou. All streams on C-52W and a few headwater tributaries on C-52N are located within the Rocky Creek Watershed, which drains into Rocky Bayou. Basin Bayou and Rocky Bayou are both tidally connected to Choctawhatchee Bay. The streams on C-52A drain directly into Choctawhatchee Bay.

The 96th Civil Engineer Group/Compliance (96 CEG/CEIEC) has primary responsibility for the management of water quality at Eglin AFB. Per the CWA, the State of Florida classifies surface waters according to their designated uses. The streams on the C-52 Complex are classified as *Class III - Fish Consumption, Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife*. Section 303(d) of the CWA requires states to develop a list of waters that do not meet established water quality standards and to develop corrective action plans for those waters on the list. Surface waters that do not meet established water quality standards are designated as being “impaired”. Mullet Creek is the only stream on the C-52 Complex listed as impaired on the 2010 303(d) list; it is listed as impaired for one parameter – fecal coliform (USEPA, 2010).

Groundwater is water that occupies the pore spaces in subsurface rocks and sediments. Groundwater under Eglin AFB occurs in two major aquifer systems: the surficial aquifer (also known as the sand and gravel aquifer) and the Floridan Aquifer. The surficial aquifer consists primarily of fine to coarse sand and gravel.

Water within this unit is generally unconfined, i.e., free to rise and fall. The surficial aquifer is not a primary water supply source at Eglin AFB; however, water is drawn from it by certain on-base wells (U.S. Air Force, 2012). The surficial aquifer is separated from the underlying confined Floridan Aquifer by the low-permeability Pensacola Clay confining bed. The Floridan Aquifer consists of a thick sequence of inter-bedded limestone and dolomite. It is the primary water supply source at Eglin AFB. The top of the Floridan Aquifer ranges from approximately 50 ft below mean seal level (msl) in the northeastern corner of Eglin AFB to approximately 700 ft below msl in the southwestern part of the Base (McKinnon and Pratt, 1998). The 2005 TA C-52 Complex EBD (U.S. Air Force, 2005) reported that a total of nine water wells exist on the C-52 Complex, five of which are active. Of the active wells, four draw groundwater from the Floridan Aquifer and one draws groundwater from the surficial aquifer.

3.4.2 Environmental Consequences

Alternative 1 (No Action Alternative)

The Proposed Action does not involve construction or any other activity that would displace wetland or surface water area, or involve withdrawal of surface water or groundwater. The primary means by which C-52 Complex operations could potentially impact water resources is via physical disturbance, soil erosion, and release of hazardous materials.

Ground Maneuvering

Ground maneuvering exercises on the C-52 Complex primarily involve troop movement on foot, bivouac/camping, equipment use, and limited vehicle use. Ground maneuvering exercises have relatively low overall potential to directly impact water resources. Vehicle use is confined to existing roads and vehicles are required to cross streams only at established stream crossings. BMPs, including erosion/sedimentation controls are implemented during ground maneuvering exercises to minimize potential indirect impacts to wetlands and surface waters. The measures implemented during ground maneuvering exercises to avoid and minimize impacts to water resources are identified in Section 4.

Munitions Use

Physical Disturbance and Soil Erosion

Munitions use on the C-52 Complex has relatively low potential to directly impact water resources. All air-to-surface target areas on the C-52 Complex are located at least 260 ft from surface water bodies, and policy requires that use of ground-based munitions (mortars, grenades, small arms, and smokes) be restricted within wetlands, surface waters, and riparian areas. The overall potential for water resources to be unintentionally adversely impacted during munitions use (e.g., by shrapnel or an errant bomb) is considered to be relatively low. Ground disturbance from munitions use, especially bombs, missiles, and EOD detonations, has the potential to increase soil erosion and, therefore, indirectly impact wetlands and surface waters. Wildfires unintentionally caused by use of munitions and pyrotechnics (e.g., flares) also has the potential to indirectly impact wetlands and riparian areas. The measures implemented during munitions use on the C-52 Complex to avoid and minimize direct and indirect impacts to water resources are identified in Section 4.

Munitions debris on the C-52 Complex is manually removed on a predetermined schedule in accordance with AFI 13-212, *Range Planning and Operations*, and EAFBI 13-212, *Range Planning and Operations*. Removed debris include shrapnel (bombs, missiles, mortars, grenades, EOD detonations), chaff and flare cartridges, munitions casings, and other debris that accumulates where munitions are used. Munitions use does not occur within or in the immediate vicinity of wetlands or surface waters; therefore, associated debris impacts to wetlands and surface waters are infrequent and minor. Debris removal within wetlands and surface waters is conducted without the use of heavy equipment to minimize disturbance to these resources.

Hazardous Materials

Ordnance, Chaff, and Flares

As discussed in Section 3.3.2, the 2005 TA C-52 Complex EBD (U.S. Air Force, 2005) used the SESOIL model (SAIC, 2003) to predict the amounts of chemical constituents of ordnance (live bombs, missiles, gunnery ammunition, and small arms ammunition), chaff, and flares that would accumulate in soils on the C-52 Complex over a 10-year period. The predicted concentrations of all munitions constituents in soil on C-52C, C-52N, and C-52W were well below the respective human-health risk and ecological screening criteria (see **Table 3-3**). Current baseline activity under Alternative 1 differs from the activity analyzed in 2005 in the use of some types of munitions, however, the two activity levels are relatively comparable with respect to overall annual munitions use. Therefore, expenditure of ordnance, chaff, and flares under Alternative 1 is not expected to degrade soil quality to a level that would adversely impact humans or ecological receptors.

Given that munitions use is not purposefully conducted within wetlands or surface waters on the C-52 Complex, the primary means by which the chemical constituents of munitions could potentially impact water quality is via stormwater runoff on the land surface or via migration of the constituents through the soil column. The overall potential for munitions constituents under Alternative 1 to adversely impact water quality in wetlands, streams, and ponds on the C-52 Complex via stormwater runoff is considered to be low given how low the estimated concentrations of the constituents are in soil. As indicated in **Table 3-3**, all predicted constituent concentrations were well below the estimated background concentrations, except copper at C-52N. Much of the copper that would enter surface waters via stormwater runoff would already be chemically bound to soil particles or organic matter and, therefore, would readily settle out of the water column. Any unbound copper is expected to readily adsorb onto organic matter, hydrous iron, manganese oxides, or clay in sediments or the water column; a considerable amount of the copper would be adsorbed in the water column within the first hour (U.S. Air Force, 2005). All air-to-surface target areas on the C-52 Complex are located at least 260 ft from surface water bodies and in most areas, extensive vegetative cover exists between the target areas and water bodies. These factors reduce the potential for stormwater runoff to transport munitions constituents over land into water bodies.

Fate and transport modeling conducted in the 2005 TA C-52 Complex EBD indicated that the inorganic (metal) constituents of munitions tend to remain in the uppermost layer of the soil (0.1 to 4 inches) and, therefore, have little potential to impact groundwater quality. Based on the model and published environmental fate and transport information, the organics RDX and TNT show a greater propensity to migrate through the soil column. Only TNT was determined to have the potential to migrate more than 40 ft through the soil column over time (see **Table 3-3**). Although these organic munitions constituents have the potential to reach the groundwater table, they are not expected to adversely impact groundwater quality given how low their estimated concentrations are in soil. Groundwater sampling is routinely conducted on C-52N under the requirements of Eglin's RCRA Part B Subpart X Permit for open detonations on the range. Groundwater samples have consistently indicated that concentrations of RDX and other explosives constituents in groundwater on C-52N do not exceed applicable regulatory criteria.

Smokes and Obscurants

As discussed in Section 3.3.2, the baseline quantities of smokes and Smoke Week expendables analyzed in the 1999 TA C-52 Complex PEA (U.S. Air Force, 1999) represent the current baseline quantities under Alternative 1. Therefore, the potential impacts that current baseline quantities of smokes and obscurants would have on water resources are the same as those determined by the analysis conducted in 1999. The types and baseline quantities of smokes/obscurants that would be used on the C-52 Complex are discussed in Section 3.3.2.

The analysis conducted in 1999 determined that baseline quantities of phosphorus smoke, metal obscurants (aluminum, aluminum-coated glass, brass flake, and nickel-coated carbon), and inert obscurants (graphite, carbon fiber, dust/silica, and kaolin) at that time would have no significant effect on water resources. Fog oil

obscurants, however, were considered to have the potential to adversely impact streams and ponds on the C-52 Complex if used in close proximity to these water bodies.

Fog oil aerosols that are emitted from smoke generators have the potential to deposit onto wetlands and surface waters on the C-52 Complex. Associated potential impacts on wetlands and surface waters are dependent on the amount of fog oil that is deposited and factors that influence fog oil degradation. Fog oil is largely water insoluble but relatively short-lived on soil surfaces. Therefore, surface waters are more prone to being impacted by fog oil deposition than wetlands, particularly wetlands that do not contain standing water. The persistence of fog oil in aquatic systems is dependent on the amount of fog oil deposition, sunlight, water temperature, mixing energy, presence of organic matter, and degree of biotransformation (Driver et al., 1993). To minimize potential impacts to aquatic systems, the 1999 TA C-52 Complex PEA recommended that fog oil obscurants should not be used within 500 meters of streams or ponds on the C-52 Complex. EAFBI 13-212, *Range Planning and Operations* restricts the use of smokes (as well as munitions, simulators, flares, and any other pyrotechnics) within 100 ft of water bodies and 200 ft of Okaloosa darter (*Etheostoma okaloosae*) streams on Eglin AFB. Provided that fog oil is not used within 500 meters of water bodies, and other smokes and obscurants are not used within 200 ft of Okaloosa darter streams or within 100 ft of other water bodies, current baseline use of smokes and obscurants on the C-52 Complex is not expected to have significantly adverse impacts on water resources.

Based on the analysis conducted, Alternative 1 would have a minor impact on water resources.

Alternative 2

Under Alternative 2, implementation of C-52 Complex operations at a mission surge level would result in a 200 percent increase in Alternative 1 annual mission activity and expendable quantities, except for expendables associated with EOD detonations and Smoke Week, which would remain at current baseline levels (see **Tables 2-7** and **2-8**). Increased ground maneuvering activity and munitions use under Alternative 2 would increase the potential for direct and indirect physical impacts to aquatic systems. However, provided that the impact avoidance and minimization measures identified in Section 4 are implemented, physical impact to water resources under Alternative 2 are not expected to be significantly adverse.

Although the annual quantities of munitions would increase under Alternative 2, there would be no change in the types of munitions used. Based on the analysis conducted for Alternative 1, a mission-surge increase in ordnance, chaff, and flares is not expected to significantly impact water resources. Given how low the predicted concentrations of all munitions constituents in soil are under Alternative 1, mission-surge activity is not expected to increase inputs of constituents into wetlands, surface waters, or groundwater to levels that would adversely impact surface water or groundwater quality. Smoke Week expendables would remain at the current baseline level under Alternative 2. Based on how minor overall smoke/obscurant impacts to water resources are under Alternative 1, the additional quantities of smokes and obscurants that would be used during testing/training under Alternative 2 are not expected to have significantly adverse impacts on water resources.

Based on the analysis conducted, Alternative 2 would have a minor impact on water resources.

3.5 Biological Resources

3.5.1 Affected Environment

Vegetation

Eglin AFB has 34 distinct natural vegetative communities; these communities fall into the following four broad ecological associations: sandhill matrix, flatwoods matrix, barrier island matrix, and wetland/riparian matrix (U.S Air Force, 2012). The sandhill matrix is by far the most extensive natural community type on Eglin AFB, accounting for approximately 80 percent of the total area of the Base. This upland community has a canopy dominated by longleaf pine, a sparse midstory of oaks and other hardwoods, and a ground layer covered by a high diversity of herbaceous species. The sandhill community is highly adapted to, and

dependent on fire, which maintains its vegetative structure and composition. Further information on the natural vegetative communities that occur on Eglin AFB can be found in the Eglin AFB INRMP (U.S. Air Force, 2012).

Sandhill, flatwoods, and wetland/riparian communities exist on the C-52 Complex. Sandhill is the dominant natural community type on the C-52 Complex. Much of total area encompassed by C-52E and C-52W is sandhill. The wetland/riparian community is the second most abundant natural community on the C-52 Complex. Most of the wetland/riparian communities exist on C-52E and C-52W. Flatwoods are not very abundant; small patches of flatwoods are interspersed throughout the C-52 Complex. Much of total area encompassed by C-52A, C-52C, and C-52N is open grassland/shrubland, which is a disturbed community type that occurs on active ranges. Open grasslands/shrublands were originally natural sandhills. They consist primarily of grasses and low shrubs, which are maintained by mechanical cutting or prescribed fire.

Fish and Wildlife

Much of the C-52 Complex provides habitat for wildlife. Wildlife abundance and diversity is generally higher on C-52E and C-52W as these ranges consist mostly of natural communities. Overall habitat quality on C-52A, C-52C, and C-52N is lower as the vegetation on these ranges is regularly cut or burned. Common wildlife species expected to occur in the upland communities on the C-52 Complex include, but are not limited to, the white-tailed deer, cottontail rabbit, gray fox, various rodents, opossum, fox squirrel, northern bobwhite, great-horned owl, various songbirds, six-lined race runner, eastern diamondback rattlesnake, five-lined skink, and green anole. Common wildlife species expected to occur in the wetland and aquatic communities on the C-52 Complex include, but are not limited to, the raccoon, American beaver, American alligator, various frogs, various wading birds, largemouth bass, and sailfin shiner.

Sensitive Species

Plant and animal species that are federally listed as Endangered or Threatened are afforded legal protection under the Endangered Species Act (ESA). The ESA requires federal agencies to ensure that actions they authorize, fund, or carry out won't likely jeopardize the continued existence of federally listed species, or result in the destruction or adverse modification of designated critical habitat of such species. It also requires that federal agencies implement measures to conserve, protect, and, where possible, enhance any listed species and its habitat. The ESA is administered by USFWS and the National Marine Fisheries Service (NMFS). Generally, USFWS manages land and freshwater species and NMFS manages marine and anadromous species, which are species that breed in freshwater but live most of their lives in the sea. Section 7 of the ESA requires that federal actions determined to potentially impact federally listed species be consulted with USFWS or NMFS.

Animal species in Florida may also be awarded state listing and associated regulatory protection in accordance with Rule 68A-27, Florida Administrative Code (F.A.C.). FWC maintains the State's list of such animal species. Animal species that are not federally listed, but which are determined to be at risk of extinction in the State are state listed as Threatened. Species that are considered vulnerable and have the potential to become threatened are state-listed as Species of Special Concern (SSC). Plant species in Florida may also be awarded state listing and associated regulatory protection in accordance with Chapter 5B-40, F.A.C. The Florida Department of Agriculture and Consumer Services maintains the State's list of such plant species.

Sensitive species also include species not federally or state listed but which are protected under the Marine Mammal Protection Act, Bald and Golden Eagle Protection Act, or Migratory Bird Treaty Act. The 96 CEG/CEIEA has primary responsibility for the management of sensitive species and habitat, including evaluation of potential impacts to sensitive species and habitats by proposed actions, at Eglin AFB. The Eglin AFB INRMP (U.S. Air Force, 2012) includes guidance on the management and protection of sensitive species and habitat at Eglin AFB.

Table 3-4 presents the federal and state listed plant and animal species documented or having the potential to occur on the C-52 Complex. **Figure 3-3** shows the locations of sensitive species and habitat on Eglin AFB and the C-52 Complex.

TABLE 3-4

Federal and State Listed Species Documented or Having Potential to Occur on the C-52 Complex*Test Area C-52 Complex REA*

Common Name	Scientific Name	Federal Status (USFWS)	State Status (FWS or FDACS)
Plants			
Hairy wild indigo	<i>Baptisia calycosa</i> var. <i>villosa</i>		T
Baltzell's sedge	<i>Carex baltzellii</i>		T
Bog button	<i>Lachnocaulon digynum</i>		T
Panhandle lily	<i>Lilium iridollae</i>		E
Naked-stemmed panicgrass	<i>Panicum nudicaule</i>		T
Sweet pitcherplant	<i>Sarracenia rubra</i>		T
Pineland hoary-pea	<i>Tephrosia mohrii</i>		T
Animals			
Okaloosa darter	<i>Etheostoma okaloosae</i>	T	FT
Reticulated flatwoods salamander	<i>Ambystoma bishopi</i>	E	FE
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	FT
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	FE
Gopher frog	<i>Lithobates capito</i>		SSC
Gopher tortoise	<i>Gopherus polyphemus</i>	C	T
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>		SSC
Burrowing owl	<i>Athene cunicularia</i>		SSC
Southeastern American kestrel	<i>Falco sparverius paulus</i>		T

Data Sources: U.S. Air Force, 2012; U.S. Air Force, 2005. Listings from FNAI, 2013

FDACS Florida Department of Agriculture & Consumer Services

FNAI Florida Natural Areas Inventory

FWC Florida Fish & Wildlife Conservation Commission

USFWS U.S. Fish & Wildlife Service

Federal Status

E Endangered

T Threatened

C Candidate for federal listing

State Status

Animals:

FE Federally listed as Endangered

FT Federally listed as Threatened

T State listed as Threatened

SSC Species of Special Concern

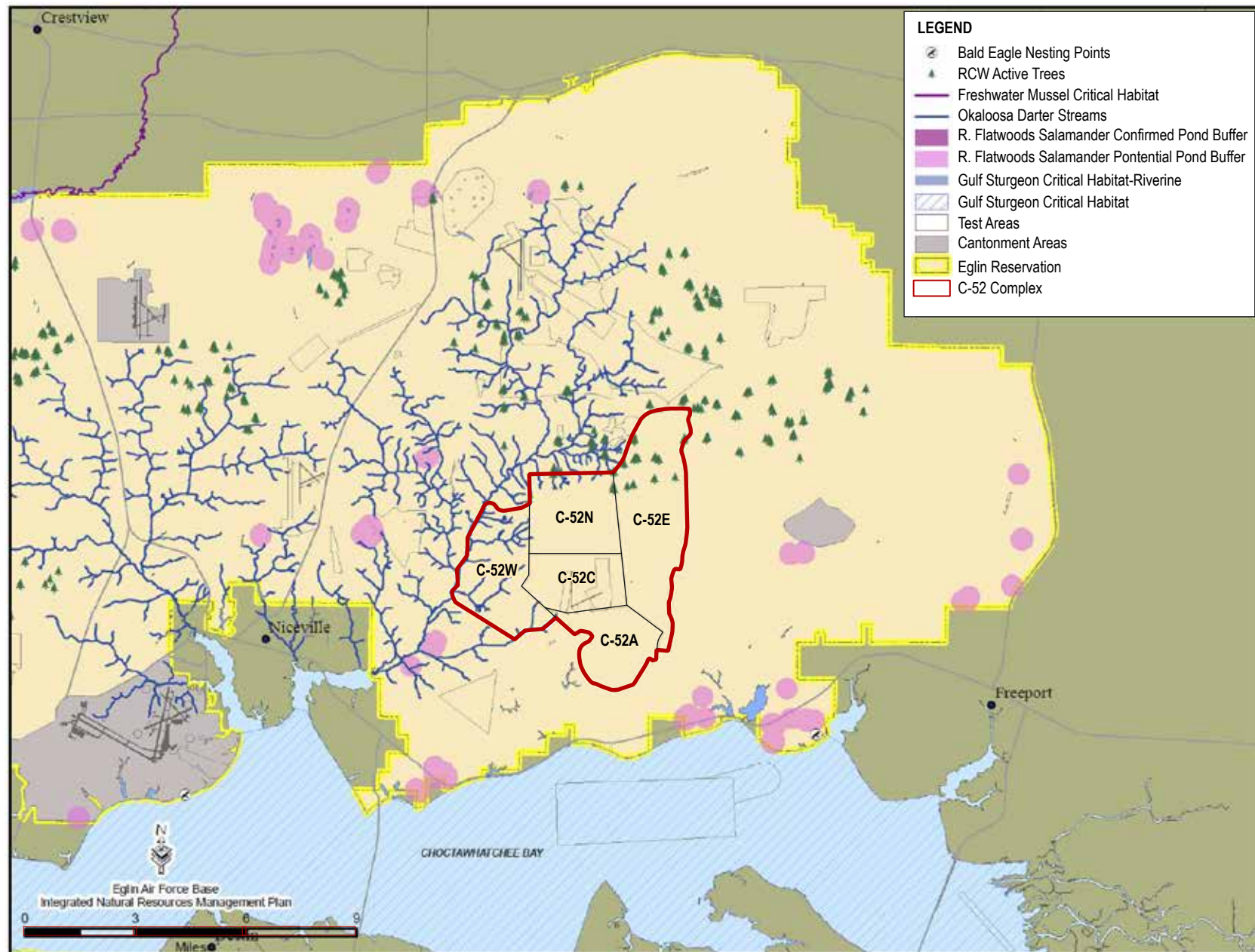
Plants:

E Endangered

T Threatened

As shown on **Figure 3-3**, the C-52 Complex contains habitat for the red-cockaded woodpecker (RCW) (*Picoides borealis*), which is federally listed as Endangered, and for the Okaloosa darter, which is federally listed as Threatened. Active RCW cavity trees are located primarily in the northern part of C-52E and along the northern and northeastern boundaries of C-52N. Okaloosa darter streams are located in the northern part of C-52N and throughout C-52W.

While much of Eglin AFB has high biodiversity, specific areas on the Base are considered unique due to the high-quality habitats they contain and/or rare species they support. Such areas have been identified by the Florida Natural Areas Inventory (FNAI) and they are known as High Quality Natural Communities, Significant Botanical Sites (SBSs), and Outstanding Natural Areas (ONAs). High Quality Natural Communities encompass approximately 75,266 acres or 16 percent of Eglin AFB, and combined, SBSs and ONAs encompass approximately 43,210 acres or 9 percent of the Base (U.S. Air Force, 2012). **Figure 3-4** shows the locations of the High Quality Natural Communities, SBSs and ONAs on Eglin AFB and the C-52 Complex. As shown on **Figure 3-4**, High Quality Natural Communities exist in the northern and southern parts of C-52E and in the northern and western parts of C-52W. The C-52 Complex does not contain any SBSs or ONAs.



Source: Eglin AFB Integrated Natural Resources Management Plan (U.S. Air Force, 2012)

FIGURE 3-3
Sensitive Species and Habitat on Eglin AFB
and the C-52 Complex
 Test Area C-52 Complex REA

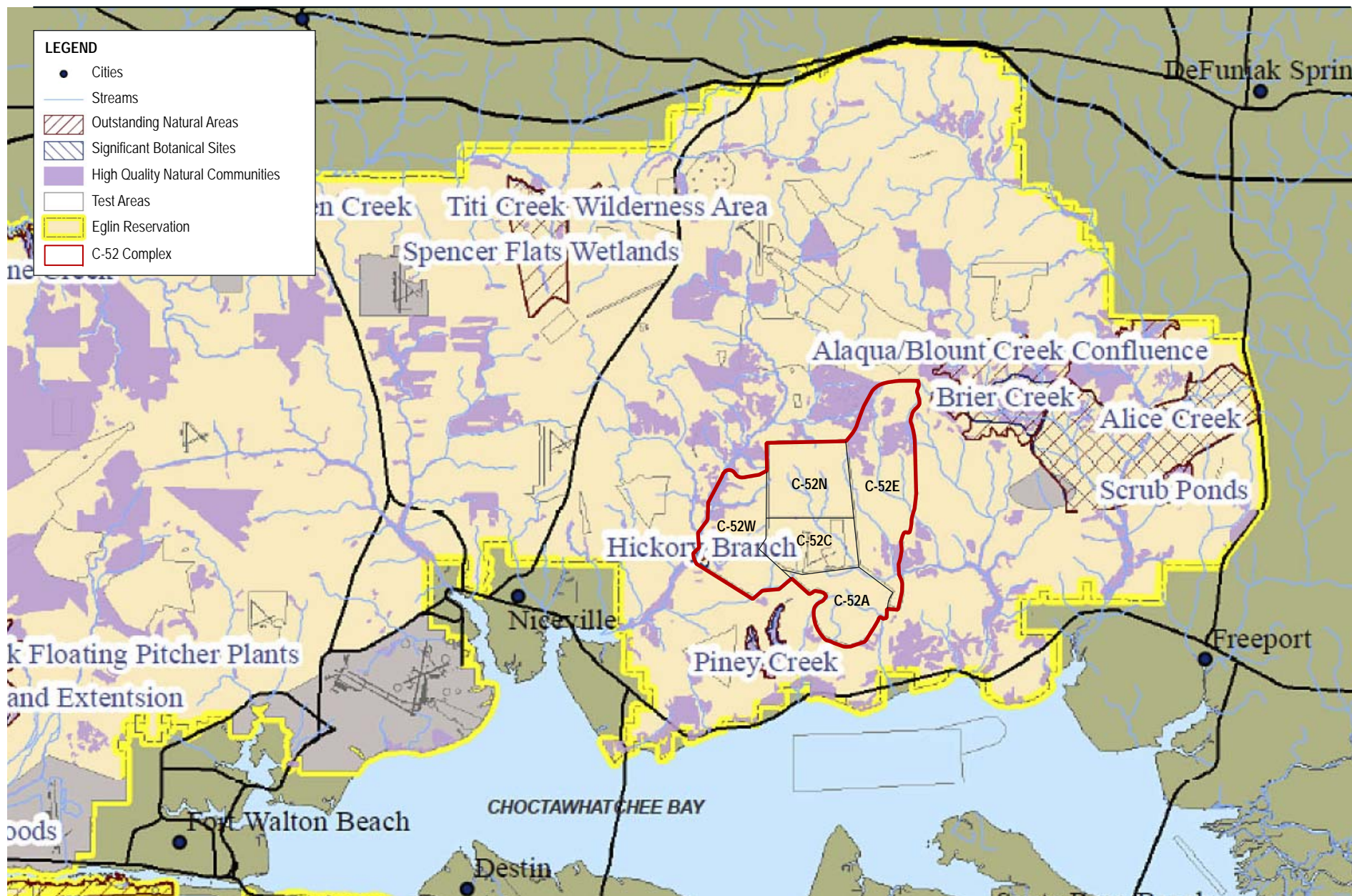


FIGURE 3-4
High Quality Natural Communities, Outstanding Natural Areas, and Significant Botanical Sites on Eglin AFB and the C-52 Complex
Test Area C-52 Complex REA

Source: Eglin AFB Integrated Natural Resources Management Plan (U.S. Air Force, 2012)

3.5.2 Environmental Consequences

ESA Section 7 Consultation

The 96 CEG/CEIEA prepared a Biological Assessment (BA) to assess the potential effects of Alternative 2 (Preferred Alternative) on federally-listed and other sensitive species, and submitted it to USFWS as part of the ESA Section 7 consultation process for the Proposed Action (Appendix E). Federally-listed species analyzed in the BA (FWS Log No. 04EF3000-2014-I-0177) include the RCW, Okaloosa darter, and eastern indigo snake (*Drymarchon couperi*). The gopher tortoise is also analyzed in the BA. The BA addresses potential direct physical impacts, harassment, and habitat impacts, and identifies conservation measures that would be required to be implemented under the Proposed Action to avoid and minimize potential impacts to listed/sensitive species. The conservation measures identified in the BA are discussed generally in this section and also incorporated into the overall management actions presented in Section 4.

Based on analysis of potential direct physical impacts, harassment, and habitat impacts associated with C-52 Complex operations, the BA concluded that the Okaloosa darter and eastern indigo may be affected, but are not likely to be adversely affected by the Proposed Action. USFWS concurred with these effect determinations (see Appendix E). With respect to the RCW, USFWS stated that C-52 Complex operations are covered under USFWS' 2013 RCW Programmatic Biological Opinion (PBO) for Eglin AFB mission activities (USFWS, 2013) (see Appendix E). To minimize potential impacts of C-52 Complex operations on listed/sensitive species, the Air Force will implement the conservation measures identified in the BA, and applicable terms and conditions from the RCW PBO.

Alternative 1 (No Action Alternative)

The primary means by which C-52 Complex operations could potentially impact biological resources is via noise, munition strikes, wildfire starts, and release of hazardous materials.

Noise

The effects of noise on wildlife are not well understood and are mostly based on observations of behavioral responses. Animals rely on hearing for a variety of functions, including obtaining food, mating, and predator avoidance. Noise may mask or interfere with these functions. A general behavioral reaction by some wildlife species when exposed to noise is the startle response. Startle responses in animals include flight, jumping, running, or movement of the head in the apparent direction of the noise source (Manci et al., 1988). Animal response to noise has been shown to vary with species. For example, amphibians do not exhibit a well-developed acoustic startle response and are generally considered to not be susceptible to noise impacts (Manci et al., 1988). Direct physiological effects of noise on wildlife are difficult to measure in the field, but may include some health effects, depending on the noise levels. Serious effects such as decreased reproductive success depends on the species, the characteristics of the noise, and many other factors.

Although many studies have examined the behavioral responses of wildlife to aircraft noise, there is little information on the effects of impulsive bomb/blast noise on wildlife. Due to the lack of information on wildlife responses to noise from bomb explosions and detonations, impulsive noise thresholds for humans are typically used in impact analyses for wildlife. Laboratory tests of exposure of bird eggs to sonic booms and other impulsive noises have failed to show associated adverse effects on hatching of eggs (Bowles et al., 1991; Bowles et al., 1994; Cottureau, 1972; Cogger and Zegarra, 1980). A structural analysis by Ting et al. (2002) showed that even under extraordinary circumstances, sonic booms would not damage a bird egg. Manci, et al. (1988) reported that a female northern harrier was hunting on a bombing range in Mississippi during bombing exercises, and was apparently unfazed by the exercises, even when a bomb exploded within 200 ft of the bird. Delaney et al. (2002) reported that RCWs were not flushed when exposed to noise levels up to 102 dB SEL generated by large caliber (> 20 mm) guns (> 700 meters) or noise levels up to 82 dB SEL generated by grenade simulators (> 200 meters).

Under Alternative 1, an explosion of a 2,000-lb bomb on C-52N would represent the greatest potential single-event impulsive noise impact on wildlife (see Section 3.2.2). In comparison, EOD detonations on C-52N

under Alternative 1 would produce much lower impulsive noise levels; noise levels from EOD detonations on C-52W would be even lower (see Section 3.2.2). Noise modeling has not been conducted specifically for a 2,000-lb bomb explosion on the C-52 Complex. **Figures 3-1** and **3-2** show the modeled noise contours for a 1,000-lb bomb (445 lbs NEW) explosion and a 3,000-lb NEW detonation, respectively, on C-52N under favorable weather conditions. As discussed above, impulsive noise thresholds for humans are typically used for wildlife due to the lack of information on wildlife responses to noise from bomb explosions and detonations. A peak sound pressure level of 140 dBP is the general impulsive noise threshold used for human hearing protection (see Section 3.2.1). As shown on **Figure 3-1**, the predicted 140 dBP contour of a 1,000-lb bomb explosion is contained well within the boundary of C-52N. As shown on **Figure 3-2**, the predicted 140 dBP contour of a 3,000-lb NEW detonation extends further out but is largely contained within the C-52 Complex. Given that the highest NEW of a 2,000-lb bomb (945 lbs NEW) is more than three times less than the 3,000-lb NEW detonation that was modeled, the 140 dBP contour of a 2,000-lb bomb explosion under favorable weather conditions is expected to be contained well within the boundaries of C-52N. Based on the locations of sensitive species and habitat shown on **Figures 3-3** and **3-4**, air-to-surface bombing on C-52N (or EOD detonations) under Alternative 1 during favorable weather conditions on average is not expected to produce noise levels greater than 140 dBP in the nearest areas containing active RCW cavity trees, in the nearest areas containing Okaloosa darter streams, or in the nearest High Quality Natural Communities. Under unfavorable weather conditions (high winds and temperature inversion), an explosion of a 2,000-lb bomb on C-52N has the potential to result in 140 dBP noise levels in areas where sensitive species and habitat occur. Air-to-surface bombing involving large bombs on the C-52 Complex would be conducted during favorable weather conditions to the extent practicable to minimize the potential for public annoyance. Therefore, the overall potential for associated adverse noise impacts on sensitive species and habitat is expected to be relatively low. The existence of active RCW cavity trees along the northern and northeastern boundaries of C-52N itself suggests that RCWs in these locations are not adversely affected by the noise generated by bombing activity on the range. It is inevitable that some wildlife species, such as those that happen to be near the bombing targets, would at times be exposed to noise levels of 140 dBP or greater during air-to-surface bombing exercises on the C-52 Complex, even under favorable weather conditions. However, based on the sizes of bombs that would be dropped (445 lbs NEW maximum) and the locations where the bombs would be dropped (only in target areas), overall noise impacts from bombs on common wildlife species and sensitive species under Alternative 1 are not expected to be significantly adverse.

Continuous noise impacts on wildlife under Alternative 1 are expected to be comparable to those which have occurred since the late 1990s to the present. The amounts of bombs, missiles, large gun ammunition, smokes, and EOD detonations that would be expended under Alternative 1 are comparable to those expended during previous years. Overall activity under Alternative 1 differs from the activity of previous years primarily with respect to ground training activity. Alternative 1 would involve more ground maneuvering exercises and associated use of small arms ammunition, grenades, and mortars on the C-52 Complex than previous years, primarily due to the projected near-term training activities of the 7 SFG on C-52C and C-52E. Ground maneuvering exercises under Alternative 1 would primarily involve troop movement on foot, bivouac/camping, equipment use, and limited vehicle use. The noise levels that would be generated by ground maneuvering exercises would be very low and would have little potential to impact the wildlife. Under Alternative 1, mortars and grenades would be used during 7 SFG ground training on C-52C, and the use of smokes would occur on C-52A. The NEWs of mortars range from approximately 1 lb to 10 lbs and the NEWs of grenades are less than 1 lb (U.S. Army Defense Ammunition Center, 2009). The NEWs of smokes are highly variable depending on the smoke type, but in general they are low. Based on the low NEWs of mortars, grenades, and smokes, and the relatively low quantities that would be expended annually, their use on the C-52 Complex under Alternative 1 is not expected to result in adverse noise impacts on common wildlife or sensitive species.

Based on the analysis conducted, baseline C-52 Complex operations under Alternative 1 are not expected to have significantly adverse noise impacts on wildlife, including any sensitive species. Wildlife have experienced noise from testing and training operations on the C-52 Complex for decades and, therefore, are

acclimated to such noise. Based on the expected noise levels and a review of the available literature on animal responses to noise, noise impacts on common and sensitive animal species under Alternative 1 are expected to be largely limited to temporary startle responses in some species. The associated startle responses are not expected to result in adverse effects on the health or reproduction of any species.

Ground Maneuvering

Ground maneuvering exercises on the C-52 Complex primarily involve troop movement on foot, bivouac/camping, equipment use, and limited vehicle use. Ground maneuvering exercises have relatively low overall potential to impact biological resources. Troops conducting ground maneuvering exercises are instructed on the protection of habitat, wildlife, and sensitive species. EAFBI 13-212, *Range Planning and Operations* identifies the measures that are required to be implemented by troops on Eglin's ranges to avoid and minimize potential impacts on biological resources, including species-specific measures for the RCW, reticulated flatwoods salamander, Okaloosa darter, gopher tortoise, gopher frog, and other sensitive species. The various measures required to be implemented during ground maneuvering exercises to avoid and minimize impacts to biological resources are identified in Section 4 and the BA that has been prepared for the Proposed Action (see Appendix E).

Munition Strikes

The overall potential for common wildlife or sensitive species to be physically struck by live or inert munitions on the C-52 Complex, either by the munition itself or by fragmented shrapnel/debris from the munition or detonation, is very low. Approximately 95 percent of non-guided munitions (bombs) fall within 500 ft of their intended targets (U.S. Air Force, 1999). Guided air-to-surface munitions (missiles, rockets, and gunnery ammunition) are more precise and, therefore, hit their intended targets at even higher accuracies. Likewise, ground-based munitions use (e.g. small arms) and EOD detonations occur only in designated areas on the range. The vast majority of air-to-surface exercises under Alternative 1 would occur over C-52N; a lesser amount would occur over C-52C. Based on the locations of sensitive species and habitat on the C-52 Complex (see **Figure 3-3**), the probability for associated physical impacts on RCWs or any other sensitive species or habitat is extremely low. Although munition strikes on wildlife cannot be completely ruled out, the overall potential for associated adverse impacts on common wildlife or sensitive species under Alternative 1 is considered to be very low.

Wildfires

Use of certain types of munitions and pyrotechnics on the C-52 Complex has the potential to start wildfires. Wildfires may also be started by improper control of campfires and vehicle ignition/idling on dry vegetation. The overall potential for a wildfire to be caused by C-52 Complex operations is influenced by the type, amount, and dryness of the vegetation in the area, and weather conditions such as relative humidity and wind speed and direction. Fire is beneficial to many of the natural communities on Eglin AFB. The sandhill community, which is the dominant natural community type on Eglin AFB and the C-52 Complex, is highly adapted to, and dependent on fire, which maintains its vegetative structure and composition. However, wildfires also have the potential to adversely affect habitats and species on Eglin if they are uncontrolled and of high intensity. Sensitive species on Eglin AFB that have the potential to be adversely impacted by uncontrolled, high-intensity wildfires include, but are not limited to, the RCW and reticulated flatwoods salamander.

Eglin AFB has an advanced wildfire management program that includes all aspects of fire prevention, detection, suppression, readiness, fire line rehabilitation, and training. Due to the presence of unexploded ordnance (UXO), portions of the C-52 Complex are designated as "No Suppression" or "Restricted Suppression" areas, and have associated restrictions on firefighting. Block-and-burn techniques, such as setting counter fires on surrounding roads, are typically used by the Air Force Wildland Fire Center at Eglin to control the spread of wildfires that may start in these areas. Specific protection measures are implemented during wildfire suppression in biologically sensitive areas on Eglin. For example, plows are not

used off range roads for fire suppression, except in extreme conditions, in or near streams, riparian buffers, wetlands, high-quality natural areas, or listed species habitats. Prescribed burning is prioritized and conducted on species-specific rotations in areas known to contain sensitive species such as the RCW and flatwoods salamander. Missions on the C-52 Complex are required to be planned and conducted in accordance with the fire danger ratings and other wildfire minimization measures identified in EAFBI 13-212, *Range Planning and Operations*. Several conservation measures will be implemented by users of the C-52 Complex to avoid and minimize potential wildfire starts. These measures are identified in the BA that has been prepared for the Proposed Action (see Appendix E), and in Section 4. Given that these measures will be strictly adhered to, the overall potential for adverse wildfire impacts on biological resources under Alternative 1 is considered to be low.

Hazardous Materials

Based on the analysis conducted in Section 3.1.2, air emissions from baseline C-52 Complex operations under Alternative 1 are not expected to have adverse impacts on air quality. Based on the analyses conducted in Sections 3.3.2 and 3.4.2, expenditure of ordnance (live bombs, missiles, gunnery ammunition, and small arms ammunition), chaff, and flares under Alternative 1 is not expected to degrade soil quality or water quality to a level that would adversely impact biological receptors. Although the concentrations of all munitions constituents in soil on C-52C, C-52N, and C-52W resulting from 10 years of accumulation were predicted to be well below the respective ecological screening criteria (see **Table 3-3**), actual constituent soil concentrations within and in the immediate vicinity of the target areas on these ranges could potentially be higher (U.S. Air Force, 2005). SESOIL modeling conducted in the 2005 TA C-52 Complex BA (U.S. Air Force, 2005) predicted that only copper in target areas on C-52N exceeded ecological criteria, and the exceedance was predicted to be slight. Although wildlife exposure to munitions constituents would be higher around target areas, significantly adverse effects on wildlife are not expected based on the estimated constituent levels and the vast amounts of foraging area available to wildlife outside the target areas.

As discussed in Section 3.3.2, the baseline quantities of smokes and Smoke Week expendables analyzed in the 1999 TA C-52 Complex PEA (U.S. Air Force, 1999) represent the current baseline quantities under Alternative 1. The types and baseline quantities of smokes/obscurants that would be used on the C-52 Complex are discussed in Section 3.3.2. The analysis conducted in 1999 determined that baseline quantities of fog oil obscuring agents, phosphorus smoke, metal obscuring agents (aluminum, aluminum-coated glass, brass flake, and nickel-coated carbon), and inert obscuring agents (graphite, carbon fiber, dust/silica, and kaolin) at that time would have no significant effect on soils on the C-52 Complex (see Section 3.3.2). Of these smokes/obscuring agents, only fog oil is considered to have the potential to adversely impact streams and ponds on the C-52 Complex if used in close proximity to these water bodies. In addition to posing a risk to aquatic organisms, fog oil could also adversely impact terrestrial species, primarily via inhalation and ingestion. Phosphorus smoke and metal obscuring agents also have the potential to affect terrestrial species, however, they pose an overall lesser risk than fog oil (U.S. Air Force, 1999).

Smokes and obscuring agents have historically been used on C-52A and C-52C. Annual use of smokes and obscuring agents during testing/training on the C-52 Complex has decreased since the previous analyzed baseline year (FY 1995). Smoke Week events were conducted on C-52A on a regular annual basis during the early to mid 1990s, but only once since then, in 2005. As shown on **Figures 3-3 and 3-4**, there are no active RCW cavity trees, Okaloosa darter streams, flatwoods salamander ponds, High Quality Natural Communities, SBS, or ONAs on C-52A or C-52C. Therefore, the use of smokes and obscuring agents on these ranges is not expected to adversely impact these sensitive species or habitats. These ranges do contain streams and potentially a few seasonally inundated ponds. The terrestrial habitats on these ranges are not of high quality as they are regularly cut or burned; however, they still support terrestrial wildlife. Terrestrial wildlife that occur in the immediate vicinity of areas where smokes and obscuring agents are used may potentially be impacted. However, noise from smoke generators and human activity are expected to discourage most wildlife from remaining in the immediate vicinity of the training area. Any associated impacts on terrestrial wildlife would be localized and infrequent, and are not expected to be significantly adverse. To minimize potential impacts to aquatic

organisms as well as terrestrial wildlife that use aquatic habitats for foraging, fog oil is recommended to not be used within 500 meters of water bodies on these ranges or those located elsewhere on the C-52 Complex. EAFBI 13-212, *Range Planning and Operations* restricts the use of smokes (as well as munitions, simulators, flares, and any other pyrotechnics) within 100 ft of water bodies and 200 ft of Okaloosa darter streams on Eglin AFB. Provided that fog oil is not used within 500 meters of water bodies, and other smokes and obscurants are not used within 200 ft of Okaloosa darter streams or within 100 ft of other water bodies, current baseline use of smokes and obscurants on the C-52 Complex is not expected to have significantly adverse impacts on aquatic organisms. These and other measures that will be implemented by users of the C-52 Complex to avoid and minimize impacts from hazardous materials are identified in Section 4 and in the BA that has been prepared for the Proposed Action (see Appendix E).

Based on the analysis conducted, Alternative 1 would have a moderate impact on biological resources; the impact would not be significant.

Alternative 2

Under Alternative 2, implementation of C-52 Complex operations at a mission surge level would result in a 200 percent increase in Alternative 1 annual expendable quantities, except for those associated with EOD detonations and Smoke Week, which would remain at current baseline levels (see **Table 2-8**). Although the annual quantities of munitions would increase under Alternative 2, there would be no change in the types of munitions used. Under Alternative 2, an explosion of a 2,000-lb bomb on C-52N would still represent the greatest potential single-event noise impact on wildlife. Based on the analysis conducted for Alternative 1, the 140 dBP contour of a 2,000-lb bomb explosion on C-52N under favorable weather conditions is expected to be contained well within the boundaries of C-52N and the associated 140 dBP noise levels on average are not expected to be experienced in the nearest areas containing active RCW cavity trees, in the nearest areas containing Okaloosa darter streams, or in the nearest High Quality Natural Communities. Air-to-surface bombing involving large bombs on the C-52 Complex under Alternative 2 would be conducted during favorable weather conditions to the extent practicable to minimize the potential for public annoyance. Therefore, the overall potential for associated adverse noise impacts on sensitive species and habitat is expected to be relatively low. Based on the sizes of bombs that would be dropped (445 lbs NEW maximum) and the locations where the bombs would be dropped (only in target areas), overall noise impacts from bombs on common wildlife species and sensitive species under Alternative 2 are not expected to be significantly adverse. Alternative 2 would involve greater live bombing, gunnery, and small arms activity and, therefore, would have the potential to have greater continuous noise impacts on wildlife than Alternative 1. Although mission surge activity under Alternative 2 would produce greater continuous noise, the associated impacts would be temporary and are expected to be largely limited to startle responses in some species. The associated startle responses are not expected to result in adverse effects on the health or reproduction of any species.

The overall potential for common wildlife or sensitive species to be physically struck by live or inert munitions on the C-52 Complex under Alternative 2 is still very low. Increased ground maneuvering activity under Alternative 2 is not expected to result in significantly adverse impacts on biological resources as troops would be required to strictly adhere to Eglin's established protection measures for habitat, wildlife, and sensitive species, and the conservation measures identified in the BA that has been prepared for the Proposed Action (see Appendix E). All measures discussed for Alternative 1 and identified in Section 4 and in the BA to avoid and minimize potential wildfire starts would be required to be implemented during all missions on the C-52 Complex under Alternative 2; therefore, the overall potential for adverse wildfire impacts on wildlife and sensitive species under Alternative 2 is considered to be low. Based on the analysis conducted for Alternative 1, a mission-surge increase in ordnance, chaff, and flares is not expected to degrade soil quality or water quality to a level that would adversely impact biological receptors. Smoke Week expendables would remain at the current baseline level under Alternative 2. The additional quantities of smokes and obscurants that would be used during testing/training under Alternative 2 are not expected to have significantly adverse impacts on biological resources provided that fog oil is not used within 500 meters of water bodies, and other

smokes and obscurants are not used within 200 ft of Okaloosa darter streams or within 100 ft of other water bodies.

Based on the analysis conducted, Alternative 2 would have a moderate impact on biological resources; the impact would not be significant.

3.6 Cultural Resources

3.6.1 Affected Environment

Cultural resources consist of any physical or traditional evidence of human activity considered relevant to a particular culture or community. Cultural resources include prehistoric and historic sites, structures, and artifacts, as well as a community's heritage and way of life.

The National Historic Preservation Act (NHPA) sets forth government policy and procedures regarding historic properties. *Historic property* is defined under 36 CFR 800.16 (l)(1) as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior”. Section 106 of the NHPA requires federal agencies consider the effects of their actions on such properties, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800).

The Eglin AFB Integrated Cultural Resources Management Plan (ICRMP) provides guidance on how to identify, evaluate, and treat cultural resources on Eglin-managed lands, and integrate cultural resources management with mission activities and other Eglin management programs (U.S. Air Force, 2013b). Development and approval requirements for the ICRMP are included in Air Force Policy Directive 32-70, *Environmental Quality*, and AFI 32-7065, *Cultural Resources Management*. The 96th Civil Engineer Group/Cultural Resources Office (96 CEG/CEIEA) has primary responsibility for the management of cultural resources, including evaluation of potential impacts to cultural resources by proposed actions, at Eglin AFB.

The inventory of cultural resources managed by the Eglin Cultural Resources Management Program includes 1,724 prehistoric, 562 historic, and 375 prehistoric and historic archaeological sites; 3 unaffiliated sites; and 1,005 historic above-ground structures (including 143 demolished buildings) (U.S. Air Force, 2013b). The majority of the buildings and structures that are 50 years or older within the Eglin real property inventory have been evaluated for NRHP eligibility. Surveys have been conducted of 134,376 acres of the total 205,336 acres within Eglin AFB that are identified as having a high probability of containing cultural resources and recommended for archaeological survey (U.S. Air Force, 2013b). The following information addresses the status of the inventory of cultural resources on the C-52 Complex as of 2014:

- C-52A: 20 archaeological sites total (5 potentially eligible, 1 eligible, 14 not eligible); survey is complete.
- C-52E: 27 archaeological sites total (2 eligible, 25 not eligible); 241 acres left to survey.
- C-52W: 47 archaeological sites total (5 potentially eligible, 42 not eligible); 1 historic cemetery requires avoidance; survey is complete.
- C-52C (including C-52C1): 5 archaeological sites total (all not eligible); Little Tokyo/Auxiliary Field 8 structures have not been assessed so they are protected until evaluated; Crossbow District-associated structures (Group # 8WL1687) are eligible. Survey is complete.
- C-52N: 4 archaeological sites total (all not eligible); the C-52 Dugout has not been assessed so it is protected until evaluated. Survey is complete.

3.6.2 Environmental Consequences

Alternative 1 (No Action Alternative)

Ground Maneuvering

Ground maneuvering exercises under Alternative 1 would be conducted on C-52C and C-52E, primarily by the 7 SFG. Ground maneuvering activity would primarily involve troop movement on foot, bivouac/camping, equipment use, and limited vehicle use. Current baseline ground maneuvering activity under Alternative 1 is higher than the previous analyzed baseline activity (FY 1995), primarily due to the projected near-term training activities of the 7 SFG on C-52C and C-52E. As discussed previously, the 7 SFG relocated to Eglin AFB in 2011 and the projected final-state levels of 7 SFG training activities on the C-52 Complex are included as part of the baseline analyzed under Alternative 1.

Much of the C-52 Complex is contaminated by UXO and requires UXO escort; therefore, ground troop movement would be limited over much of the range. Ground maneuvering exercises have relatively low potential to impact cultural resources as they would primarily involve troop movement on foot; associated vehicle use would be limited and confined to existing roads. Authorization by the 96 CEG/CEIEA is required for ground maneuvering exercises proposed in areas having high probability of containing cultural resources. To minimize potential impacts to cultural resources, ground maneuvering activity should be limited to the extent practicable in high probability areas. Within high probability areas, specific areas considered to be particularly vulnerable include steep slopes along watercourses, very soft sandy soil, and areas where cultural materials are noted on the ground surface. Digging or other intentional ground disturbing activity is prohibited anywhere on Eglin AFB without prior authorization from the 96 CEG/CEIEA. Per Eglin AFB policy outlined in the ICRMP, all planned activities that involve ground disturbance at Eglin AFB are required to be coordinated with 96 CEG/CEIEA cultural resources personnel. Based on the occurrence probability of the area proposed for disturbance, the 96 CEG/CEIEA determines if the area is required to be surveyed for cultural resources. In the event that cultural materials are inadvertently discovered during ground maneuvering exercises, all Eglin AFB requirements regarding inadvertent discoveries would be implemented. All activities in the immediate vicinity of the inadvertent find would immediately cease and the 96 CEG/CEIEA would be contacted to assess the find, and determine what legal mandates are applicable, and whether mitigation and consultation are required (U.S. Air Force, 2013b).

A Programmatic Agreement between Eglin AFB, the 7 SFG, the JSF Program, and the Florida SHPO was developed in association with the Eglin BRAC-2005 EIS (U.S. Air Force, 2008) to address the planning, impact avoidance/minimization, and mitigation requirements for 7 SFG operations on the C-52 Complex (Appendix D). This Programmatic Agreement identifies the areas where 7 SFG operations can and cannot be conducted on the C-52 Complex, based on the findings of archaeological surveys conducted in association with the Eglin BRAC-2005 EIS. Areas having restricted access are fenced or marked in the field in accordance with Section III.E of the Programmatic Agreement. Any 7 SFG operations proposed to be conducted in areas not authorized by the Programmatic Agreement would require approval by the 96 CEG/CEIEA and consultation with the Florida SHPO.

Munitions Use

The primary means by which munitions use on the C-52 Complex could potentially impact cultural resources is via ground disturbance. To date, noise generated by munitions use on the C-52 Complex has not structurally damaged any historic building or structure on Eglin AFB (Lynn Shreve, Personal Communication, March 6, 2014). Based on the noise analysis conducted in Section 3.2.2, noise generated by current baseline munitions use on the C-52 Complex is not expected to structurally damage any historic building or structure. The use of some munitions, such as bombs, results in ground disturbance. The overall potential for munitions use on the C-52 Complex to impact buried archaeological resources is considered to be low. Munitions use on the C-52 Complex occurs only in areas authorized for the activity. Some of these areas have been surveyed and other areas have been determined to be too unsafe to survey due to the presence of UXO. Any munitions use proposed in areas not previously authorized for the activity would require

coordination with 96 CEG/CEIEA cultural resources personnel. Based on the occurrence probability of the area, the 96 CEG/CEIEA would determine if the area is required to be surveyed and if any restrictions would be required for the proposed activity. In the event that cultural materials are inadvertently discovered during munitions use on the range, all Eglin AFB requirements regarding inadvertent discoveries would be implemented, as described above for ground maneuvering.

Based on the analysis conducted, Alternative 1 would have no effect on cultural resources.

Alternative 2

Under Alternative 2, implementation of C-52 Complex operations at a mission surge level would result in greater ground maneuvering activity and munitions use on the range. Given that ground maneuvering and munitions use under Alternative 2 would be subject to the same restrictions, avoidance/minimization, and consultation requirements as under Alternative 1, the potential for cultural resources impacts under Alternative 2 is not expected to increase.

Based on the analysis conducted, Alternative 2 would have no effect on cultural resources.

3.7 Safety

3.7.1 Affected Environment

Several Air Force regulations address safety, including AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*. Air Force activities must comply with AFOSH guidance at all times. Air Force activities must also comply with OSHA regulations unless a military-unique exemption applies according to DoD Instruction 6055.1, *DoD Safety and Occupational Health Program*.

Measures taken to minimize the risk to public safety on military property include enforcing restrictions on public access in areas with inherent safety risks, either permanently or temporarily. The extent of such restrictions are based on careful evaluation of all potential safety risk factors, which include but are not limited to, noise levels, blast effects, and potential presence of UXO. Based on the inherent safety risks posed by current and past munitions use on the C-52 Complex, the entire range is closed to the public at all times.

The 96 TW Safety Office has the responsibility of ensuring the safe conduct of testing and training operations in the ETTC. Range-specific safety is the responsibility of the Range Safety Office and personnel designated as Range Safety Officers and Officers in Charge. Safety procedures required to be implemented for Eglin range operations are specified in AFI 13-212, *Range Planning and Operations*, EAFBI 13-212, *Range Planning and Operations*, and other range operation regulations and guidance documents.

3.7.2 Environmental Consequences

Alternative 1 (No Action Alternative)

The C-52 Complex is closed to the public at all times; therefore, baseline C-52 Complex operations under Alternative 1 would not jeopardize the health and safety of members of the public. All testing and training operations on the C-52 Complex are required to be conducted in coordination with the Range Safety Office and in strict compliance with all safety procedures specified in AFI 13-212, *Range Planning and Operations*, EAFBI 13-212, *Range Planning and Operations*, and other applicable range operation regulations and guidance documents. The safety procedures required to be followed by military users of the C-52 Complex and other Eglin ranges are extensive and include, but are not limited to, safety procedures for munitions/pyrotechnics use, ground training, vehicle use, and UXO avoidance. Although the nature and extent of testing and training operations conducted on the C-52 Complex pose an inherent safety risk to military personnel, the potential for adverse health and safety impacts on military personnel is minimized by the range safety procedures that have been established. Given that these safety procedures are strictly enforced, the overall potential for baseline C-52 Complex operations under Alternative 1 to result in adverse health and safety impacts on military personnel is considered to be relatively low.

Based on the analysis conducted, Alternative 1 would have a minor impact on safety.

Alternative 2

The C-52 Complex is closed to the public at all times; therefore, implementation of C-52 Complex operations at a mission surge level would not jeopardize the health and safety of members of the public. Mission-surge C-52 Complex operations would involve greater overall military activity on the range and, therefore, can be expected to pose a greater overall safety risk to military personnel than baseline C-52 Complex operations. However, given that established range safety procedures would still be strictly enforced, the overall potential for mission-surge C-52 Complex operations under Alternative 2 to result in adverse health and safety impacts on military personnel is considered to be relatively low.

Based on the analysis conducted, Alternative 2 would have a minor impact on safety.

3.8 Environmental Justice and Protection of Children

3.8.1 Affected Environment

On February 11, 1994, the President issued EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. This EO requires federal agencies to address disproportionate environmental and human health impacts from federal actions on minority populations and low-income populations. The President directed all federal agencies to analyze the environmental effects on minority and low-income communities, including human health, social, and economic effects.

The Air Force's *Guide for Environmental Justice Analysis with the Environmental Impact Analysis Process (EIAP)* provides guidance on how environmental justice should be analyzed in conjunction with EIAP in accordance with NEPA (Department of the Air Force, 1997). According to this guidance, if the Proposed Action would have no impact on human populations, or if the impact that it would have would not be adverse, the Proposed Action would not disproportionately impact minority or low-income populations and no environmental justice analysis would be required. If the Proposed Action is determined to have an adverse impact on human populations, then the environmental justice analysis should be conducted in accordance with the guidance to determine if it would disproportionately impact minority or low-income populations.

Guidelines for the protection of children are specified in EO 13045, *Protection of Children from Environmental Health Risks and Safety Risk* (*Federal Register*, Volume 62, Number 78, April 23, 1997). This EO requires that federal agencies make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children, and ensure that policies, programs, and standards address disproportionate risks to children that result from environmental health or safety risks.

3.8.2 Environmental Consequences

Alternative 1 (No Action Alternative)

Baseline C-52 Complex operations under Alternative 1 would have at most, moderate impacts on the resources most relevant for assessing impacts on human populations, which are air quality, noise, groundwater, surface water, and hazardous materials/wastes. The potential impacts that Alternative 1 would have on these resources would not adversely affect human populations. Therefore, Alternative 1 would not have disproportionately high or adverse human health or environmental effects on minority or low-income populations. No activity under Alternative 1 would result in environmental health or safety risks to children.

Alternative 2

Mission surge C-52 Complex operations under Alternative 2 would have at most, moderate impacts on the resources most relevant for assessing impacts on human populations, which are air quality, noise, groundwater, surface water, and hazardous materials/wastes. The potential impacts that Alternative 2 would have on these resources would not adversely affect human populations. Therefore, Alternative 2

would not have disproportionately high or adverse human health or environmental effects on minority or low-income populations. No activity under Alternative 2 would result in environmental health or safety risks to children.

3.9 Cumulative Impacts

Cumulative impacts are defined in the CEQ regulations implementing provisions of NEPA (CEQ 1508.7) as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

Alternative 2 includes all baseline (current and near-term) and anticipated mission-surge C-52 Complex activity. Alternative 2 represents the entire scope of actions associated with C-52 Complex operations that would be implemented by the Air Force from the present through the foreseeable future. Based on the analysis conducted in Section 3, the magnitude of impact that the entire scope of C-52 Complex operations would have on each resource analyzed is expected to be moderate at most, and not significantly adverse. This determination is made based on the types, durations, frequencies, and locations of the operations and the resources at potential risk.

Military operations have been conducted at Eglin AFB for almost 80 years. Military operations within and beyond the Proposed Action ROI have and continue to include a wide range of testing and training activities on/over Eglin’s land and water ranges, which include approximately 130,000 mi² of airspace and over 50 specific test areas/sites. Public recreational activities, including hunting, fishing, hiking, and boating, occur on approximately 261,000 acres of Eglin AFB. The general region has experienced steady population and economic growth over the years; past and present major actions are primarily associated with residential and commercial development in the population centers and development of regional infrastructure such as roadways, airports, and utility systems. The primary reasonably foreseeable future actions within and near the Proposed Action ROI include the following:

- **Relocation of the 7 SFG to Eglin AFB:** The 7 SFG relocated from Fort Bragg, North Carolina to Eglin AFB in 2011 as part of the 2005 BRAC Program. The projected final-state levels of 7 SFG training activities on the C-52 Complex are included as part of the baseline analyzed under Alternative 1. Final-state 7 SFG personnel relocations and range/facility construction at Eglin AFB have been analyzed in the Eglin BRAC-2005 EIS (U.S. Air Force, 2008). Final-state 7 SFG ranges/facilities will include associated future construction on and off the C-52 Complex.
- **JSF Beddown at Eglin AFB:** A total of 59 F-35 aircraft (JSF aircraft) were authorized for delivery to Eglin AFB by the February 5, 2009 Record of Decision (ROD) issued for Implementation of BRAC 2005 Decisions for the JSF Initial Joint Training Site, Eglin AFB, Florida (*Federal Register*, Volume 74, page 34, February 23, 2009). Potential impacts of the beddown and operations of the JSF aircraft were analyzed in the 2014 *Final Supplemental Environmental Impact Statement for F-35 Beddown at Eglin Air Force Base, Florida* (U.S. Air Force, 2014), the ROD for which was signed on June 26, 2014.
- **Destin-Fort Walton Beach Airport:** Projects over the next five years would include construction of a new Air Traffic Control tower, runway paving, apron expansion for additional aircraft parking, and construction of a noise wall, additional parking spaces, and an engine run-up pad.
- **DeFuniak Springs Airport:** Projects over the next five years would include upgrades to existing aircraft parking aprons, various utility and equipment upgrades/construction, and construction of a new aircraft apron, T-hangar aircraft storage building, taxiways, and access road.
- **Paving Rattlesnake Road from Hwy 85 to Camp James Rudder:** This project would involve the paving of Range Road 211 (River Road) from the intersection of Range Road 211 and Range Road 257 (Camp Road), to the intersection of Range Road 211 and Hwy 85.

- **Hwy 123 Widening:** This project would involve widening Hwy 123 from two lanes to four lanes, from Hwy 85 South to Hwy 85 North.
- **Hwy 87 Widening:** This project would involve widening Hwy 87 from two lanes to four lanes, from the southern boundary of Eglin AFB to the Yellow River Bridge.
- **Eglin Main Comprehensive Plan.** Based on the Eglin and Duke Field Comprehensive Plan, 32 Military Construction (MILCON) projects (facilities and runways) are planned beyond FY 2011 at Eglin Main Base.
- **Hurlburt Field General Plan:** Based on the Hurlburt Field General Plan, more than 50 transportation and capital improvement projects are planned over the next five years on Hurlburt Field.
- **Relocation of Aviation Foreign Internal Defense (AvFID) Mission to Eglin AFB:** The AvFID mission is in the process of relocating from Hurlburt Field to Duke Field on Eglin AFB.
- **Relocation of 9th Special Operations Squadron (9 SOS) to Hurlburt Field:** The 9 SOS is relocating from Eglin AFB to Hurlburt Field to consolidate all local C-130 operations.
- **Alabama Army National Guard (ALARNG):** In the next two to five years, the ALARNG proposes to relocate their support facilities from Test Area B-75 to the Duke Field area.
- **AFSOC Small Unmanned Aerial System (UAS) School at Choctaw Field:** The Air Force allowed AFSOC to stand-up a temporary UAS Schoolhouse at Choctaw Field in the summer of 2009. This temporary beddown would become permanent in the future if the Air Force determines the AFSOC UAS operations can be completed in conjunction with proposed F-35 operations at Choctaw Field. If the UAS operations conflict with F-35 operations, then AFSOC would relocate their UAS Schoolhouse.
- **Military Housing Privatization Initiative (MHPI):** The Air Force is currently privatizing all military family housing for both Eglin AFB and Hurlburt Field. This process involves the demolition and construction of more than 1,400 houses. These activities were analyzed in the *Final Environmental Impact Statement for the Military Housing Privatization Initiative (MHPI) at Eglin AFB and Hurlburt Field, Florida* (U.S. Air Force, 2011). The associated ROD was signed on February 6, 2012.
- **Emerald Coast Resort:** The Emerald Coast Resort is being constructed by the Air Force at Eglin Test Site A-5 on Santa Rosa Island to be used by active service members and their families, retirees, DoD employees and families, and the general public as a recreation resort and commercial complex. Potential impacts have been analyzed in an EA and the associated FONSI was signed on September 11, 2009.
- **Emerald Coast Technology and Research Center (ECTRC) at the University of Florida Research and Engineering Education Facility:** The ECTRC will be developed by the Air Force as a campus to be jointly used by the military and private sector. The ECTRC campus will benefit current and future missions, research, and development at Eglin AFB and the surrounding communities. Potential impacts have been analyzed in an EA and the associated FONSI was signed on April 4, 2012.
- **F-18 Operations at Choctaw Field:** The Navy is currently repairing Oceana Fentress Naval Auxiliary Landing Field in Virginia, and during this period some of the flight training has been shifted to Choctaw Field. The associated operations at Choctaw Field would be temporary.

The Proposed Action is not expected to have adverse cumulative impacts on air quality. Air emissions under the Proposed Action would be comparable to past air emissions on the C-52 Complex, and the associated impacts on air quality would be negligible with respect to regional criteria pollutant emissions and potential human health risk. Air emissions from foreseeable future infrastructure development projects would be temporary, intermittent, and minor, and significant increases in future mission-related air emissions are not expected. The Proposed Action is not expected to result in adverse cumulative impacts on soils or water resources. It does not involve construction or any other activity that would displace soils, wetlands, or surface waters, or involve withdrawal of surface water or groundwater. The Proposed Action's potential impacts on soil quality and water quality would be localized and minor. When combined with the potential

impacts of other Eglin range operations and infrastructure development projects, the resulting cumulative impacts on soil and water quality are not expected to be significantly adverse.

When added to present and foreseeable future actions, the Proposed Action is not expected to result in adverse cumulative noise impacts. Most of the present and future actions outside of Eglin AFB involve construction and/or demolition noise, which is temporary and typically limited to normal working hours. The Proposed Action would have only minor noise impacts on the public, common wildlife, and sensitive species. The noise levels generated by proposed testing/training operations on the C-52 Complex would be comparable to those generated by past operations. Significant increases in future operational noise levels on other Eglin land ranges are not expected and geographical separation between the C-52 Complex and other ranges limits the potential for adverse cumulative noise impacts. The projected expansion of Eglin air operations are expected to result in greater associated noise levels. Concurrent C-52 Complex and Eglin air operations noise may result in greater public annoyance and animal startle responses. Associated cumulative impacts are expected to be largely limited to communities and wildlife in the vicinity of Eglin's airfields and are not expected to be significantly adverse.

Based on the analysis conducted, when added to past, present, and reasonably foreseeable actions, the Proposed Action is not expected to have significantly adverse cumulative impacts on any resource.

3.10 Summary of Environmental Consequences

The potential environmental consequences of Alternatives 1 and 2 are summarized in **Table 3-5**.

TABLE 3-5

Summary of Environmental Consequences

Test Area C-52 Complex REA

Resource	Alternative 1	Alternative 2
Air Quality	<p><i>Minor Impact – Not Significant</i></p> <p>Worst-case criteria pollutant concentrations resulting from C-52 Complex emissions are expected to be well below NAAQS. Total annual pollutant emissions are expected to not exceed 0.5 percent of Walton County emissions.</p>	<p><i>Minor Impact – Not Significant</i></p> <p>Worst-case criteria pollutant concentrations resulting from C-52 Complex emissions are expected to be well below NAAQS. Total annual pollutant emissions are expected to not exceed 1.5 percent of Walton County emissions.</p>
Noise	<p><i>Moderate Impact – Not Significant</i></p> <p>Current baseline munitions use under Alternative 1 is not expected to have significant single-event or continuous (time-averaged) noise impacts on the public. Potential noise impacts on the public under Alternative 1 would be limited to annoyance; noise levels under Alternative 1 would not cause hearing loss.</p> <p>Under Alternative 1, the explosion of a 2,000-lb bomb, which is the largest live bomb that would be dropped on C-52N, would have the greatest potential single-event noise impact on the public. A 2,000-lb bomb explosion on C-52N under favorable weather conditions is not expected to produce 115 dBP noise levels in the nearest residential communities. Under unfavorable weather conditions, noise from large bombs and potentially other munitions used on the C-52 Complex has the potential to result in 115 dBP noise levels in nearby residential communities. Current baseline munitions use under favorable weather conditions is not expected to produce 140 dBP noise levels outside of Eglin AFB; the overall potential for 140 dBP noise levels to be experienced outside Eglin under unfavorable weather conditions is also considered to be low. Air-to-surface bombing and EOD detonations under Alternative 1 would be conducted under favorable weather conditions to the extent practicable to minimize noise impacts on the public and sensitive species.</p>	<p><i>Moderate Impact – Not Significant</i></p> <p>Mission-surge munitions use under Alternative 2 is not expected to have significant single-event or continuous (time-averaged) noise impacts on the public. Potential noise impacts on the public under Alternative 2 would be limited to annoyance; noise levels under Alternative 2 would not cause hearing loss.</p> <p>Alternative 2 has the potential to have greater continuous noise impacts on the public; single-event noise impacts under Alternative 2 would be the same as those under Alternative 1. Under Alternative 2, the explosion of a 2,000-lb bomb, which is the largest live bomb that would be dropped on C-52N, would have the greatest potential single-event noise impact on the public. A 2,000-lb bomb explosion on C-52N under favorable weather conditions is not expected to produce 115 dBP noise levels in the nearest residential communities. Under unfavorable weather conditions, noise from large bombs and potentially other munitions used on the C-52 Complex has the potential to result in 115 dBP noise levels in nearby residential communities. Mission-surge munitions use under favorable weather conditions is not expected to produce 140 dBP noise levels outside of Eglin AFB; the overall potential for 140 dBP noise levels to be experienced outside Eglin under</p>

Resource	Alternative 1	Alternative 2
		unfavorable weather conditions is also considered to be low. Air-to-surface bombing and EOD detonations under Alternative 2 would be conducted under favorable weather conditions to the extent practicable to minimize noise impacts on the public and sensitive species.
Soils	<p><i>Minor Impact – Not Significant</i></p> <p>Physical impacts to soils under Alternative 1 would be negligible and would be minimized by the management actions identified in Section 4.</p> <p>Expenditure of ordnance, chaff, and flares under Alternative 1 is not expected to degrade soil quality to a level that would adversely impact humans or ecological receptors. Current baseline quantities of smokes and obscurants are not expected to have significant impacts on soils.</p>	<p><i>Minor Impact – Not Significant</i></p> <p>Physical impacts to soils under Alternative 2 would be negligible and would be minimized by the management actions identified in Section 4.</p> <p>Expenditure of ordnance, chaff, and flares under Alternative 2 is not expected to degrade soil quality to a level that would adversely impact humans or ecological receptors. Mission surge quantities of smokes and obscurants are not expected to have significant impacts on soils.</p>
Water Resources	<p><i>Minor Impact – Not Significant</i></p> <p>Direct and indirect physical impacts to wetlands and surface waters under Alternative 1 would be negligible and would be minimized by the management actions identified in Section 4.</p> <p>Under Alternative 1, the overall potential for munitions constituents in soil to adversely impact surface water quality via stormwater runoff or groundwater quality via migration of the constituents through the soil column is considered to be low. Current baseline quantities of phosphorus smoke, metal obscurants, and inert obscurants are not expected to have significant impacts on water resources. Fog oil obscurants, however, are considered to have the potential to adversely impact streams and ponds if used in close proximity to these water bodies. Provided that fog oil is not used within 500 meters of water bodies, and other smokes and obscurants are not used within 200 ft of Okaloosa darter streams or within 100 ft of other water bodies, current baseline quantities of smokes and obscurants are not expected to have significantly adverse impacts on water resources.</p>	<p><i>Minor Impact – Not Significant</i></p> <p>Direct and indirect physical impacts to wetlands and surface waters under Alternative 2 would be negligible and would be minimized by the management actions identified in Section 4.</p> <p>Under Alternative 2, the overall potential for munitions constituents in soil to adversely impact surface water quality via stormwater runoff or groundwater quality via migration of the constituents through the soil column is considered to be low. Mission surge quantities of phosphorus smoke, metal obscurants, and inert obscurants are not expected to have significant impacts on water resources. Fog oil obscurants, however, are considered to have the potential to adversely impact streams and ponds if used in close proximity to these water bodies. Provided that fog oil is not used within 500 meters of water bodies, and other smokes and obscurants are not used within 200 ft of Okaloosa darter streams or within 100 ft of other water bodies, mission-surge quantities of smokes and obscurants are not expected to have significantly adverse impacts on water resources.</p>
Biological Resources	<p><i>Moderate Impact – Not Significant</i></p> <p>The BA prepared as part of the ESA Section 7 consultation process for the Proposed Action concluded that the Okaloosa darter and eastern indigo snake may be affected, but are not likely to be adversely affected by the Proposed Action. USFWS concurred with these effect determinations. With respect to the RCW, USFWS stated that C-52 Complex operations are covered under USFWS' 2013 RCW PBO. To minimize potential impacts of C-52 Complex operations on listed/sensitive species, the Air Force will implement the conservation measures identified in the BA, and applicable terms and conditions from the RCW PBO.</p> <p>Current baseline C-52 Complex operations under Alternative 1 are not expected to have significantly adverse single-event or continuous noise impacts on wildlife, including any sensitive species. Noise impacts on common and sensitive animal species under Alternative 1 are expected to be largely limited to temporary startle responses in some species. The associated startle responses are not expected to result in adverse effects on the health or reproduction of any species.</p>	<p><i>Moderate Impact – Not Significant</i></p> <p>The BA prepared as part of the ESA Section 7 consultation process for the Proposed Action concluded that the Okaloosa darter and eastern indigo snake may be affected, but are not likely to be adversely affected by the Proposed Action. USFWS concurred with these effect determinations. With respect to the RCW, USFWS stated that C-52 Complex operations are covered under USFWS' 2013 RCW PBO. To minimize potential impacts of C-52 Complex operations on listed/sensitive species, the Air Force will implement the conservation measures identified in the BA, and applicable terms and conditions from the RCW PBO.</p> <p>Mission surge C-52 Complex operations under Alternative 2 are not expected to have significantly adverse single-event or continuous noise impacts on wildlife, including any sensitive species. Alternative 2 has the potential to have greater continuous noise impacts on animals; single-event noise impacts under Alternative 2 would be the same as those under Alternative 1. Noise impacts on common and sensitive animal species under Alternative 2 are expected to be largely limited to</p>

Resource	Alternative 1	Alternative 2
	<p>The overall potential for common wildlife or sensitive species to be physically struck by live or inert munitions under Alternative 1 is very low. Ground maneuvering activity under Alternative 1 is not expected to result in significantly adverse impacts on biological resources as troops would be required to strictly adhere to Eglin's established protection measures for habitat, wildlife, and sensitive species, and the conservation measures identified in the BA that has been prepared for the Proposed Action. Users of the C-52 Complex will be required to implement the measures identified in Section 4 and in the BA to avoid and minimize potential wildfire starts; therefore, the overall potential for adverse wildfire impacts on biological resources under Alternative 1 is considered to be low.</p>	<p>temporary startle responses in some species. The associated startle responses are not expected to result in adverse effects on the health or reproduction of any species.</p> <p>The overall potential for common wildlife or sensitive species to be physically struck by live or inert munitions under Alternative 2 is very low. Ground maneuvering activity under Alternative 2 is not expected to result in significantly adverse impacts on biological resources as troops would be required to strictly adhere to Eglin's established protection measures for habitat, wildlife, and sensitive species, and the conservation measures identified in the BA that has been prepared for the Proposed Action. Users of the C-52 Complex will be required to implement the measures identified in Section 4 and in the BA to avoid and minimize potential wildfire starts; therefore, the overall potential for adverse wildfire impacts on biological resources under Alternative 2 is considered to be low.</p>
Biological Resources (con't.)	<p>Current baseline use of smokes and obscurants is expected to have little potential to adversely impact sensitive species or habitat as there are no active RCW cavity trees, Okaloosa darter streams, flatwoods salamander ponds, High Quality Natural Communities, SBS, or ONAs on C-52A or C-52C. Terrestrial wildlife that occur in the immediate vicinity of areas where smokes and obscurants are used may potentially be impacted. However, noise from smoke generators and human activity are expected to discourage most wildlife from remaining in the immediate vicinity of the training area. Any associated impacts on terrestrial wildlife would be localized and infrequent, and are not expected to be significantly adverse. Provided that fog oil is not used within 500 meters of water bodies, and other smokes and obscurants are not used within 200 ft of Okaloosa darter streams or within 100 ft of other water bodies, current baseline quantities of smokes and obscurants are not expected to have significantly adverse impacts on aquatic organisms.</p>	<p>Mission surge use of smokes and obscurants is expected to have little potential to adversely impact sensitive species or habitat as there are no active RCW cavity trees, Okaloosa darter streams, flatwoods salamander ponds, High Quality Natural Communities, SBS, or ONAs on C-52A or C-52C. Terrestrial wildlife that occur in the immediate vicinity of areas where smokes and obscurants are used may potentially be impacted. However, noise from smoke generators and human activity are expected to discourage most wildlife from remaining in the immediate vicinity of the training area. Any associated impacts on terrestrial wildlife would be localized and infrequent, and are not expected to be significantly adverse. Provided that fog oil is not used within 500 meters of water bodies, and other smokes and obscurants are not used within 200 ft of Okaloosa darter streams or within 100 ft of other water bodies, mission-surge quantities of smokes and obscurants are not expected to have significantly adverse impacts on aquatic organisms.</p>
Cultural Resources	<p><i>No Effect</i></p> <p>C-52 operations under Alternative 1 would have relatively low potential to impact cultural resources as they would be conducted only in areas designated/authorized for the operations. Authorization by the 96 CEG/CEIEA would be required for any proposed digging or other intentional ground disturbing activity, or for any new operations proposed in areas having high probability of containing cultural resources. In the event that cultural materials are inadvertently discovered, all Eglin AFB requirements regarding inadvertent discoveries would be implemented. Noise generated by current baseline munitions use is not expected to structurally damage any historic building or structure.</p>	<p><i>No Effect</i></p> <p>C-52 operations under Alternative 2 would have relatively low potential to impact cultural resources as they would be conducted only in areas designated/authorized for the operations. Authorization by the 96 CEG/CEIEA would be required for any proposed digging or other intentional ground disturbing activity, or for any new operations proposed in areas having high probability of containing cultural resources. In the event that cultural materials are inadvertently discovered, all Eglin AFB requirements regarding inadvertent discoveries would be implemented. Noise generated by mission-surge munitions use is not expected to structurally damage any historic building or structure.</p>

Resource	Alternative 1	Alternative 2
Safety	<p><i>Minor Impact – Not Significant</i></p> <p>The C-52 Complex is closed to the public at all times; therefore, baseline C-52 Complex operations would not jeopardize the health and safety of members of the public. All testing and training operations under Alternative 1 would be conducted in coordination with the Range Safety Office and in strict compliance with all established range safety procedures; therefore, the overall potential for adverse health and safety impacts on military personnel is relatively low.</p>	<p><i>Minor Impact – Not Significant</i></p> <p>The C-52 Complex is closed to the public at all times; therefore, mission-surge C-52 Complex operations would not jeopardize the health and safety of members of the public. All testing and training operations under Alternative 2 would be conducted in coordination with the Range Safety Office and in strict compliance with all established range safety procedures; therefore, the overall potential for adverse health and safety impacts on military personnel is relatively low.</p>
EJ and Protection of Children	<p>Alternative 1 would not have disproportionately high or adverse human health or environmental effects on minority or low-income populations. No activity under Alternative 1 would result in environmental health or safety risks to children.</p>	<p>Alternative 2 would not have disproportionately high or adverse human health or environmental effects on minority or low-income populations. No activity under Alternative 2 would result in environmental health or safety risks to children.</p>
Cumulative Impacts	<p>When added to past, present, and reasonably foreseeable actions, Alternative 1 would not have significantly adverse cumulative impacts on any resource.</p>	<p>When added to past, present, and reasonably foreseeable actions, Alternative 2 would not have significantly adverse cumulative impacts on any resource.</p>

Permits, Mitigation, and Management Actions

4.1 Permits

EOD detonations on C-52N are currently conducted under Eglin's RCRA Part B Subpart X Permit issued by FDEP. This permit would continue to be required for EOD detonations on C-52N under the Proposed Action. No other permits are required for any activity within the scope of the Proposed Action addressed in this REA.

4.2 Mitigation

Compensatory mitigation is not required for any activity within the scope of the Proposed Action addressed in this REA. Impact avoidance and minimization measures are addressed below.

4.3 Management Actions

The following management actions focus on avoidance and minimization of impacts to the resources analyzed in detail in this REA. They do not address all the standard procedures and measures required to be implemented for Eglin range operations, which include those specified in AFI 13-212, *Range Planning and Operations*, EAFBI 13-212, *Range Planning and Operations*, and other applicable range operation regulations and guidance documents. All personnel involved in testing and training operations on the C-52 Complex are expected to implement these management actions.

- Conduct testing/training operations only in areas designated/authorized for the operations.
- Ensure that all mission personnel are provided with restrictions regarding protected species [i.e., Range Standard Operating Procedures (RSOP) briefing], including maps when necessary.
- Drive vehicles only on existing roads and areas specifically designated/authorized for off-road vehicle use.
- Do not drive vehicles in wetlands, streams, or ponds. Cross streams only at established stream crossings.
- Locate all new targets at least 200 ft from surface water bodies. To the extent possible, orient new targets so weapons are fired away from active RCW cavity trees.
- Do not use munitions, smokes, obscurants, or other pyrotechnics within 200 ft of Okaloosa darter streams or within 100 ft of other surface water bodies. Do not use fog oil within 500 meters of surface water bodies.
- Annually consider potential impacts to the RCW from C-52 Complex operations, as detailed in USFWS' 2013 RCW PBO, and follow pertinent requirements (summarized below):
 - Follow Management Guidelines for the RCW on Army Installations (U.S. Army, 2007), unless prior approval has been given by the Chief of Natural Resources
 - Check the fire danger rating daily, and follow the Eglin Wildfire Specific Action Guide restrictions for pyrotechnics use by class day (see Table 3 in BA).
 - Immediately notify the Joint Test & Training Operations Control Center and Eglin Fire Dispatch of any wildfire observed.
 - Cutting of RCW cavity trees or any longleaf pine tree is prohibited without prior written authorization from the Chief of Natural Resources.
 - Coordinate with Natural Resources prior to land clearing or target establishment and follow all construction-related requirements in the RCW PBO.

- Coordinate with Natural Resources regarding any necessary pre/post-surveys prior to activities that may harass the RCW.
 - Berms will be constructed to collect ammunition or shrapnel for missions that may impact active RCW cavity trees or foraging habitat.
 - Do not establish new high impact activities within 500 feet of active RCW trees, (i.e., helicopter landing zones), without prior written authorization from the Chief of Natural Resources.
 - Per AFI 32-7064, Eglin must ensure adequate personnel and resources are available for addressing mission started wildfires.
- Per EAFBI 13-212, *Range Planning and Operations*, and U.S. Army (2007): Do not set up smoke generators or smoke pots within 200 ft of a marked RCW cavity tree, but the smoke may drift through the 200-ft circle around a cavity tree. Do not use CS/riot agents or HC smoke of any type within 200 ft of a marked RCW cavity tree. Colored smoke grenades (except HC smoke grenades) may be used within 200 ft of a RCW cavity tree. Adhere to all other restrictions identified in EAFBI 13-212 for training activities in active RCW buffer zones.
 - Adhere to all restrictions identified in EAFBI 13-212, *Range Planning and Operations*, pertaining to the flatwoods salamander, Okaloosa darter, gopher tortoise, gopher frog, and all other sensitive species addressed.
 - Do not conduct any ground disturbing activity (e.g., off-road driving or digging) within 200 ft of an Okaloosa darter stream. Do not clear land or establish targets within 300 ft of an Okaloosa darter stream.
 - If any munition inadvertently enters an Okaloosa darter stream, contact the 96 CEG/CEIEA immediately to coordinate removal of the munition.
 - During fire suppression activities, equipment operators will be directed to avoid gopher tortoises, burrows, and indigo snakes.
 - If a gopher tortoise or indigo snake is encountered, allow it to leave the area before resuming activities.
 - Prior to any land clearing or establishment of new targets, mission personnel must contact Eglin Natural Resources to coordinate a gopher tortoise/indigo snake survey and any necessary relocation.
 - Do not drive over, step on, fill, or in any way cause a gopher tortoise burrow to collapse. Avoid gopher tortoise burrows by at least 25 ft. If operations cannot avoid the burrow by 25 ft., the tortoise would be relocated in accordance with FWC protocols.
 - Any indigo snakes located during surveys would be relocated in accordance with the *Eglin Indigo Snake Programmatic Biological Opinion* (USFWS, 2009).
 - Conduct air-to-surface bombing and EOD detonations under favorable weather conditions to the extent practicable to minimize noise impacts on the public and sensitive species. Unfavorable weather conditions include high winds and temperature inversions. Coordinate with Eglin's Weather Office to identify weather conditions and plan testing/training operations accordingly.
 - Follow the requirements identified in EAFBI 13-212, *Range Planning and Operations* for wildfire prevention, reporting, and suppression procedures.
 - Plan all missions on the C-52 Complex in accordance with the fire danger ratings identified in EAFBI 13-212, *Range Planning and Operations*. Fire danger ratings must be checked on a daily basis and all associated restrictions on pyrotechnics use per the ratings must be followed.

- Appoint a fire marshal on a daily basis (eligible personnel must have a minimum rank of a noncommissioned officer or equivalent rank) while on the range to ensure all personnel have been indoctrinated concerning the safe use of incendiary devices and to supervise the immediate suppression of fires.
- Release flares at altitudes that will ensure complete burnout prior to reaching the surface. Do not release flares when surface winds exceed 15 knots or when the fire index presents an unacceptable hazard.
- Attend all campfires at all times. Clear all leaves, brush, pine needles, etc. within at least four feet from the campfire. Do not start a campfire within 50 feet of a wooden structure or in any location where loss of control might lead to a facility, forest, or brush fire.
- Eglin will follow protocols detailed in the latest USFWS-approved INRMP regarding wildfire protection measures for sensitive species and habitats.
- Remove munitions debris from the range on a predetermined schedule in accordance with Air Force regulations. Do not use heavy equipment to remove debris from wetlands or surface water bodies.
- Limit training/testing operations in areas having high probability of containing cultural resources. All operations proposed in high probability areas must be authorized by the 96 CEG/CEIEA.
- Digging or other intentional ground disturbing activity is prohibited anywhere on the C-52 Complex without prior authorization from the 96 CEG/CEIEA.
- In the event that cultural materials are inadvertently discovered during testing/training operations, cease all activities in the immediate vicinity of the inadvertent find and contact the 96 CEG/CEIEA.

SECTION 5

List of Preparers

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SECTION 6

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Appendix A
Federal Agency CZMA Consistency Determination

FEDERAL AGENCY COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION

This document provides the State of Florida with the U.S. Air Force's Consistency Determination under CZMA Section 307 and 15 C.F.R. Part 930 subpart C, for the Preferred Alternative (Alternative 2) of the draft 2014 Test Area C-52 Complex Range Environmental Assessment (REA), Eglin AFB, Florida. Federal consistency with the statutes implemented under the Florida Coastal Zone Management Program is addressed in the table below. Pursuant to 15 C.F.R. § 930.41, the Florida State Clearinghouse has 60 days from receipt of this document to concur with, or object to, this Consistency Determination, or to request an extension, in writing, under 15 C.F.R. § 930.41(b). Florida's concurrence will be presumed if Eglin AFB does not receive its response within 60 days from receipt of this document.

Florida Coastal Management Program Review

Statute	Federal Consistency	Scope
Chapter 161 <i>Beach and Shore Preservation</i>	The Proposed Action does not involve any activity that would occur on or near the coastline. C-52 Complex operations under the Proposed Action would have no potential to affect the state's management or preservation of beaches and shores.	This statute provides policy for the regulation of construction, reconstruction, and other physical activities related to the beaches and shores of the state. Additionally, this statute requires the restoration and maintenance of critically eroding beaches.
Chapter 163, Part II <i>Growth Policy; County and Municipal Planning; Land Development Regulation</i>	The Proposed Action would not affect local government comprehensive plans.	Requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.
Chapter 186 <i>State and Regional Planning</i>	The Proposed Action would be consistent with the state's statutes and regulations regarding state plans for water use, land development, or transportation.	Details state-level planning efforts. Requires the development of special statewide plans governing water use, land development, and transportation.
Chapter 252 <i>Emergency Management</i>	The Proposed Action would not affect the state's vulnerability to natural disasters. The Proposed Action would not affect emergency response and evacuation procedures.	Provides for planning and implementation of the state's response to, efforts to recover from, and the mitigation of natural and manmade disasters.
Chapter 253 <i>State Lands</i>	The Proposed Action does not involve the use of state lands and would not restrict public access to state lands. Therefore, the Proposed Action would be consistent with the state's administration of public lands.	Addresses the state's administration of public lands and property of this state and provides direction regarding the acquisition, disposal, and management of all state lands.
Chapter 258 <i>State Parks and Preserves</i>	The Proposed Action would not affect state parks or preserves.	Addresses administration and management of state parks and preserves.
Chapter 259 <i>Land Acquisition for Conservation or Recreation</i>	The Proposed Action would not affect the state's acquisition of environmentally endangered lands or outdoor recreation lands.	Authorizes acquisition of environmentally endangered lands and outdoor recreation lands.
Chapter 260 <i>Florida Greenways and Trails Act</i>	The Proposed Action would not affect the Florida Greenways and Trails Program.	Established in order to conserve, develop, and use the natural resources of Florida for healthful and recreational purposes.

Statute	Federal Consistency	Scope
Chapter 267 <i>Historical Resources</i>	Potential impacts on cultural resources are analyzed in Section 3.6.2 of the REA. Based on the analysis conducted, the Proposed Action would have no effect on cultural resources. Therefore, the Proposed Action would be consistent with the management and preservation of the state's archaeological and historical resources.	Addresses management and preservation of the state's archaeological and historical resources.
Chapter 288 <i>Commercial Development and Capital Improvements</i>	The Proposed Action would not affect current or future business, trade, or tourism in the region.	Promotes and develops general business, trade, and tourism components of the state economy.
Chapter 334 <i>Transportation Administration</i>	The Proposed Action would not affect transportation.	Addresses the state's policy concerning transportation administration.
Chapter 339 <i>Transportation Finance and Planning</i>	The Proposed Action would not affect the finance and planning needs of the state's transportation system.	Addresses the finance and planning needs of the state's transportation system.
Chapter 373 <i>Water Resources</i>	Potential impacts on water resources are analyzed in Section 3.4.2 of the REA. Based on the analysis conducted, the Proposed Action would not adversely impact groundwater, surface waters, floodplains, or wetlands. Therefore, the Proposed Action would be consistent with the state's statutes and regulations regarding the water resources of the state.	Addresses sustainable water management; the conservation of surface and groundwaters for full beneficial use; the preservation of natural resources, fish, and wildlife; protecting public land; and promoting the health and general welfare of Floridians
Chapter 375 <i>Outdoor Recreation and Conservation Lands</i>	The Proposed Action would not affect recreational opportunities on state lands.	Develops comprehensive multipurpose outdoor recreation plan to document recreational supply and demand, describe current recreational opportunities, estimate need for additional recreational opportunities, and propose means to meet the identified needs.
Chapter 376 <i>Pollutant Discharge Prevention and Removal</i>	Potential impacts from emissions released during C-52 Complex operations are analyzed primarily in Sections 3.1.2, 3.3.2, 3.4.2, and 3.5.2 of the REA. Based on the analysis conducted, potential releases during C-52 Complex operations would not adversely impact humans, air quality, soils, water resources, or biological resources. Handling, storage, and disposal of hazardous materials/wastes associated with C-52 Complex operations would be conducted in coordination with Eglin's Compliance Office (96 CEG/CEIEC) and in accordance with all applicable environmental compliance regulations and Eglin AFB environmental management plans. Therefore, the Proposed Action would be consistent with the state's statutes and regulations regarding the transfer, storage, or transportation of pollutants.	Regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges.
Chapter 377 <i>Energy Resources</i>	The Proposed Action would not affect oil and gas resources of the state.	Addresses regulation, planning, and development of oil and gas resources of the state.

Statute	Federal Consistency	Scope
Chapter 379 <i>Fish and Wildlife Conservation</i>	Potential impacts on fish and wildlife, including sensitive species, are analyzed in Section 3.5.2 of the REA. Based on the analysis conducted, the Proposed Action would not adversely impact fish and wildlife, including sensitive species. Therefore, the Proposed Action would be consistent with the state's policies concerning the protection of fish and wildlife resources.	Addresses the management and protection of the state's wide diversity of fish and wildlife resources.
Chapter 380 <i>Land and Water Management</i>	The Proposed Action would not affect state management of land or water.	Establishes land and water management policies to guide and coordinate local decisions relating to growth and development.
Chapter 381 <i>Public Health, General Provisions</i>	The Proposed Action would not affect the state's policy concerning the public health system.	Establishes public policy concerning the state's public health system.
Chapter 388 <i>Mosquito Control</i>	The Proposed Action would not affect mosquito control efforts.	Addresses mosquito control effort in the state.
Chapter 403 <i>Environmental Control</i>	Potential impacts on air quality and water quality are analyzed in Section 3.1.2 and Section 3.4.2, respectively, of the REA. Based on the analysis conducted, the Proposed Action would not result in degradation of air quality or water quality. Handling, storage, and disposal of hazardous materials/wastes associated with C-52 Complex operations would be conducted in coordination with Eglin's Compliance Office (96 CEG/CEIEC) and in accordance with all applicable environmental compliance regulations and Eglin AFB environmental management plans. Therefore, the Proposed Action would be consistent with the state's statutes and regulations regarding water quality, air quality, pollution control, solid waste management, or other environmental control efforts.	Establishes public policy concerning environmental control in the state.
Chapter 582 <i>Soil and Water Conservation</i>	Potential impacts on soils are analyzed in Section 3.3.2 of the REA. Based on the analysis conducted, the Proposed Action would not adversely impact soils or increase soil erosion potential. Therefore, the Proposed Action would be consistent with the state's statutes and regulations regarding soil and water conservation efforts.	Provides for the control and prevention of soil erosion.

Appendix B

IICEP Correspondence



CH2M HILL
4350 W. Cypress Street
Suite 600
Tampa, FL 33607
Tel 813.874.0777
Fax 813.874.3056

August 22, 2014

Lauren Milligan
Florida State Clearinghouse
Florida Department of Environmental Protection
3900 Commonwealth Boulevard
Mail Station 47
Tallahassee, Florida 32399-3000

Subject: Draft Environmental Assessment, Test Area C-52 Complex, Eglin AFB, Florida

Dear Ms. Milligan:

The U.S. Air Force proposes to authorize and implement the projected level of activity for Test Area C-52 Complex operations at Eglin AFB, Florida. The draft Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) prepared for the Proposed Action are attached for your review and comment. The U.S. Air Force's Consistency Determination under CZMA Section 307 and 15 C.F.R. Part 930 subpart C, for the Preferred Alternative (Alternative 2) is provided as Appendix A of the draft EA.

Your comments are requested within 60 days of receipt of this letter. Please submit comments to Mike Spaits, 96th Test Wing Environmental Public Affairs, 101 W. D Ave., Rm. 238, Eglin AFB, Fla., 32542, or email: michael.spaits@us.af.mil. Tel: (850) 882-2836.

Sincerely,

CH2M HILL

A handwritten signature in black ink, appearing to read 'T Orsoy'.

Tunch Orsoy
Project Manager

Attachment:
Draft EA and FONSI (5 CDs)



**FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**

MARJORY STONEMAN DOUGLAS BUILDING
3900 COMMONWEALTH BOULEVARD
TALLAHASSEE, FLORIDA 32399-3000

RICK SCOTT
GOVERNOR

CARLOS LOPEZ-CANTERA
LT. GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

October 8, 2014

Mr. Michael Spaits
Public Affairs Office, 96 TW/PA
Department of the Air Force
101 West D Avenue, Room 238
Eglin AFB, FL 32542-5499

RE: Department of the Air Force – Draft Range Environmental Assessment,
Test Area C-52 Complex, Eglin Air Force Base – Walton County, Florida.
SAI # FL201408256997C

Dear Mr. Spaits:

Florida State Clearinghouse staff has reviewed the subject Draft Range Environmental Assessment (REA) under the following authorities: Presidential Executive Order 12372; § 403.061(42), *Florida Statutes*; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

Based on the information contained in the Draft REA and enclosed state agency comments, the state has determined that, at this stage, the proposed activities are consistent with the Florida Coastal Management Program (FCMP). The state's continued concurrence will be based on the activities' compliance with FCMP authorities, including federal and state monitoring of the activities to ensure their continued conformance, and the adequate resolution of any issues identified during subsequent regulatory reviews. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting process, in accordance with Section 373.428, *Florida Statutes*, if applicable.

Thank you for the opportunity to review the draft document. Should you have any questions regarding this letter, please don't hesitate to contact me at Lauren.Milligan@dep.state.fl.us or (850) 245-2170.

Yours sincerely,

Lauren P. Milligan, Coordinator
Florida State Clearinghouse
Office of Intergovernmental Programs

Enclosures

cc: Scott Sanders, FWC



Florida

Department of Environmental Protection

"More Protection, Less Process"



Categories

[DEP Home](#) | [OIP Home](#) | [Contact DEP](#) | [Search](#) | [DEP Site Map](#)

Project Information

Project: FL201408256997C

Comments Due: 10/02/2014

Letter Due: 10/24/2014

Description: DEPARTMENT OF THE AIR FORCE - DRAFT RANGE ENVIRONMENTAL ASSESSMENT, TEST AREA C-52 COMPLEX, EGLIN AIR FORCE BASE - WALTON COUNTY, FLORIDA.

Keywords: USAF - DREA, TEST AREA C-52 COMPLEX, EGLIN AFB - WALTON CO.

CFDA #: 12.200

Agency Comments:

FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

The FWC advises that, based upon staff's review of the Management Actions contained in the Draft REA, the BA, and the conservation measures identified by the USFWS, the FWC agrees that minimal effects from the proposed action should occur to listed species and their habitat. For further information and assistance, please contact Mr. Theodore Hoehn at (850) 488-8792 or Ted.Hoehn@MyFWC.com.

NORTHWEST FLORIDA WMD - NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT

No Comment/Consistent

ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Upon review, Section 3.4.2 of the Draft REA states that the proposed action is not expected to significantly impact water resources. The DEP's Northwest District Office in Pensacola concurs and has no comments. Please note that, if new permanent impacts or construction activities are proposed, the U.S. Air Force would likely be required to apply for an environmental resource permit from the NFWMD per Chapter 62-330, F.A.C., for wetland impacts and stormwater management.

STATE - FLORIDA DEPARTMENT OF STATE

No Comment/Consistent

For more information or to submit comments, please contact the Clearinghouse Office at:

3900 COMMONWEALTH BOULEVARD, M.S. 47
TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

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and Wildlife
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(800) 955-8770 (V)

MyFWC.com

October 1, 2014

Ms. Lauren P. Milligan, Coordinator
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, MS 47
Tallahassee, FL 32399-3000
Lauren.Milligan@dep.state.fl.us

Re: SAI #FL201408256997C, Department of the Air Force (AFB), Draft Range
Environmental Assessment, Test Area – C-52 Complex, Eglin AFB, Walton County,
Florida

Dear Ms. Milligan:

Florida Fish and Wildlife Conservation Commission (FWC) staff has reviewed the draft Environmental Assessment (DEA), and provides the following comments and recommendations for your consideration in accordance with Chapter 379, Florida Statutes, and the Coastal Zone Management Act, Florida's Coastal Management Program.

Project Description

The C-52 Complex encompasses approximately 28.2 mi² of land in the southeastern part of Eglin AFB and is divided into the following test areas: C-52A, C-52C, C-52E, C-52N, and C-52W. The proposed action is to implement Test Area C-52 complex operations at a mission surge level or a 200 percent increase in existing usage for ordinance detonation and various training activities. The DEA in section 4.3 contains the management actions that Eglin AFB will implement to minimize and avoid impacts to the resources of Test Area C-52. Eglin AFB has coordinated with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act. The Biological Assessment (BA) and USFWS consultation conservation measures are contained in Appendix E of the draft Environmental Assessment.

Comments

Based upon our review of the Management Actions contained in the DEA, the BA, and the conservation measures identified by the USFWS, we agree that minimal effects from the proposed action should occur to listed species and their habitat. We concur that the draft EA is consistent with our authorities under Chapter 379, Florida Statutes. If you need any further assistance, please do not hesitate to contact Jane Chabre either by phone at (850) 410-5367 or at FWCConservationPlanningServices@MyFWC.com. If you have specific technical questions regarding the content of this letter, please contact Theodore Hoehn at (850) 488-8792 or by email at ted.hoehn@myfwc.com.

Sincerely,

Jennifer D. Goff
Land Use Planning Program Administrator
Office of Conservation Planning Services

jdg/th
ENV 1-3-2
Eglin AFB Draft Range EA Test Area C-52_19761_100114

COUNTY: WALTON

DATE: 8/25/2014

COMMENTS DUE DATE: 10/2/2014

RECEIVED
BUREAU OF
HISTORIC PRESERVATION
2014 AUG 28 P 1:56

CLEARANCE DUE DATE: 10/24/2014

SAI#: FL201408256997C

RECEIVED

MESSAGE:

OCT 01 2014

STATE AGENCIES

ENVIRONMENTAL
PROTECTIONFISH AND WILDLIFE
COMMISSION

X STATE

WATER MNGMNT.
DISTRICTS

NORTHWEST FLORIDA WMD

OPB POLICY
UNITRPCS & LOG
GOVSDEP Office of
Intergov't Programs

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

- ☐ Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.
- ☒ Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.
- ☐ Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.
- ☐ Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

DEPARTMENT OF THE AIR FORCE - DRAFT
RANGE ENVIRONMENTAL ASSESSMENT, TEST
AREA C-52 COMPLEX, EGLIN AIR FORCE BASE
- WALTON COUNTY, FLORIDA.

To: Florida State Clearinghouse

EO. 12372/NEPA Federal Consistency

AGENCY CONTACT AND COORDINATOR (SCH)
3900 COMMONWEALTH BOULEVARD MS-47
TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

☐ No Comment☐ Comment Attached☐ Not Applicable☒ No Comment/Consistent☐ Consistent/Comments Attached☐ Inconsistent/Comments Attached☐ Not Applicable

From:

Division/Bureau: Historical Resources / Historic PreservationReviewer: Timothy ParsonsDate: 9/23/14

**Range Environmental Assessment
Test Area C-52 Complex
Eglin AFB, Florida**

**U.S. Air Force Responses to Comments on the Draft EA
Received During Public/Agency Review**

The U.S. Air Force's responses to comments on the draft Range Environmental Assessment (REA) for Test Area (TA) C-52 Complex at Eglin Air Force Base (AFB), Florida, dated July 2014, received during the public/agency review period are provided below. The full versions of all received comments are included in Appendix B of the final REA.

General Public

No comments were received from the general public.

Florida Department of Environmental Protection – Florida State Clearinghouse

Comments received: October 8, 2014 from Ms. Lauren P. Milligan

In a letter dated October 8, 2014, the Florida Department of Environmental Protection (FDEP) – Florida State Clearinghouse stated that “based on the information contained in the Draft EA and enclosed state agency comments, the state has determined that, at this stage, the proposed federal activities are consistent with the Florida Coastal Management Program (FCMP).”

The Air Force acknowledges, as stated in the received letter, that “the state’s continued concurrence will be based on the activities’ compliance with FCMP authorities, including federal and state monitoring of the activities to ensure their continued conformance, and the adequate resolution of any issues identified during subsequent regulatory reviews.” The Air Force also acknowledges and accepts, as stated in the received letter, that “the state’s final concurrence of the project’s consistency with the FCMP will be determined during the environmental permitting process, in accordance with Section 373.428, *Florida Statutes*, if applicable.”

Florida Fish and Wildlife Conservation Commission

Comments received: October 8, 2014 from Ms. Jennifer D. Goff via the Florida State Clearinghouse

In a letter dated October 1, 2014, the Florida Fish and Wildlife Conservation Commission stated that “based upon our review of the Management Actions contained in the DEA, the BA, and the conservation measures identified by the USFWS, we agree that minimal effects from the proposed action should occur to listed species and their habitat. We concur that the draft EA is consistent with our authorities under Chapter 379, *Florida Statutes*.”

Northwest Florida Water Management District

Comments received: October 8, 2014 via the Florida State Clearinghouse

The Northwest Florida Water Management District provided the following response: “No Comment/Consistent”.

Florida Department of Environmental Protection - Northwest District Office

Comments received: October 8, 2014 via the Florida State Clearinghouse

In its comments, FDEP's Northwest District Office stated that "upon review, Section 3.4.2 of the Draft REA states that the proposed action is not expected to significantly impact water resources. The DEP's Northwest District Office in Pensacola concurs and has no comments."

The Air Force acknowledges, as stated in the received comments, that if new permanent impacts or construction activities are proposed, the Air Force would likely be required to apply for an Environmental Resource Permit from the Northwest Florida Water Management District per Chapter 62-330, F.A.C., for wetland impacts and stormwater management.

Florida Department of State

Comments received: October 8, 2014 from Mr. Timothy Parsons via the Florida State Clearinghouse

The Florida Department of State (Bureau of Historic Preservation/State Historic Preservation Office) provided the following response: "No Comment/Consistent".

Appendix C

Public Involvement

NORTHWEST FLORIDA

Daily News

Published Daily

Fort Walton Beach, Florida

Distributed in Okaloosa, Santa Rosa & Walton Counties

State of Florida, County of Okaloosa

Before the undersigned authorized personally appeared Rebecca Barnes
who on oath says that (s)he is Legal Advertising Clerk
of the Northwest Florida Daily News,

a daily newspaper published at Fort Walton Beach, in Okaloosa County, Florida;

that the attached copy of advertisement, being a Legal 2105614

in the matter of Public Notice -

RCs-13-052

in the Okaloosa County Court, was published in said newspaper in the issues of

8-21-14

Affiant further says that the said Northwest Florida Daily News is a newspaper published at Fort Walton Beach, in said Okaloosa County, Florida, and that the said newspaper has heretofore been continuously published in said Okaloosa County, Florida, each day, and has been entered as second class mail matter at the post office in Fort Walton Beach, in said Okaloosa County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that (s)he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

STATE OF FLORIDA
COUNTY OF OKALOOSA

Subscribed and sworn to (or affirmed) before me this 8-21-14
(Date)

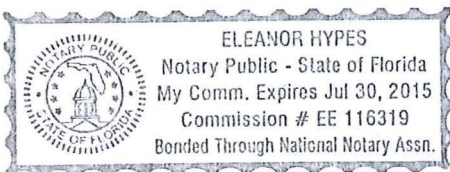
by [Signature], who is/are personally known to me or

has/have produced _____ as identification.

(Type of identification)

Eleanor Hypes Notary Public, Commission No. _____
(Signature)

(Name of Notary typed, printed or stamped)



provided will be addressed and may be published in the Final EA. Any personal information provided, including private addresses, will be used only to identify your desire to make a statement during the public comment period or to compile a mailing list to fulfill requests for copies of the Final EA or associated documents. However, only the names and respective comments of respondent individuals will be disclosed; personal home addresses and phone numbers will not be published in the Final EA.

The Draft Environmental Assessment and Draft Finding of No Significant Impact are available on the web at www.eglin.af.mil/environmentalassessments.asp from August 22 until September 20, 2014. All area libraries have computers available to the general public and librarians who can provide assistance linking to the document. Hard copies of the document may be available for a limited time by contacting: Mike Spaits, 96th Test Wing Environmental Public Affairs, 101 W. D Ave., Rm. 238, Eglin AFB, Fla., 32542, or email: michael.spaits@us.af.mil. Tel: (850) 882-2836.

The documents will be available on the web from August 22 until September 20, 2014. For more information or to comment on the Proposed Action, contact Mike Spaits, at the contact listed above. Comments must be received by September 24, 2014.

2105613

PUBLIC NOTIFICATION

In compliance with the National Environmental Policy Act, Eglin Air Force Base announces the availability of a Draft Environmental Assessment and Finding of No Significant Impact for RCS 13-052, Test Area C-52 Complex for public review and comment.

The Proposed Action of RCS 13-052, Test Area C-52 Complex would be to authorize and implement an increased level of activity for C-52 Complex operations at Eglin AFB to update/validate the current approval process for routine military users and to provide a quick response to priority needs during war or other significant military involvement.

Your comments on this Draft EA are requested. Letters and other written or oral comments provided will be addressed and may be published in the Final EA. Any personal information provided, including private addresses, will be used only to identify your desire to make a statement during the public comment period or to compile a mailing list to fulfill requests for copies of the Final EA or associated documents. However, only the names and respective comments of respondent individuals will be disclosed; personal home addresses and phone numbers will not be published in the Final EA.

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The documents will be available on the web from August 22 until September 20, 2014. For more information or to comment on the Proposed Action, contact Mike Spaits, at the contact listed above. Comments must be received by September 24, 2014.

2105614

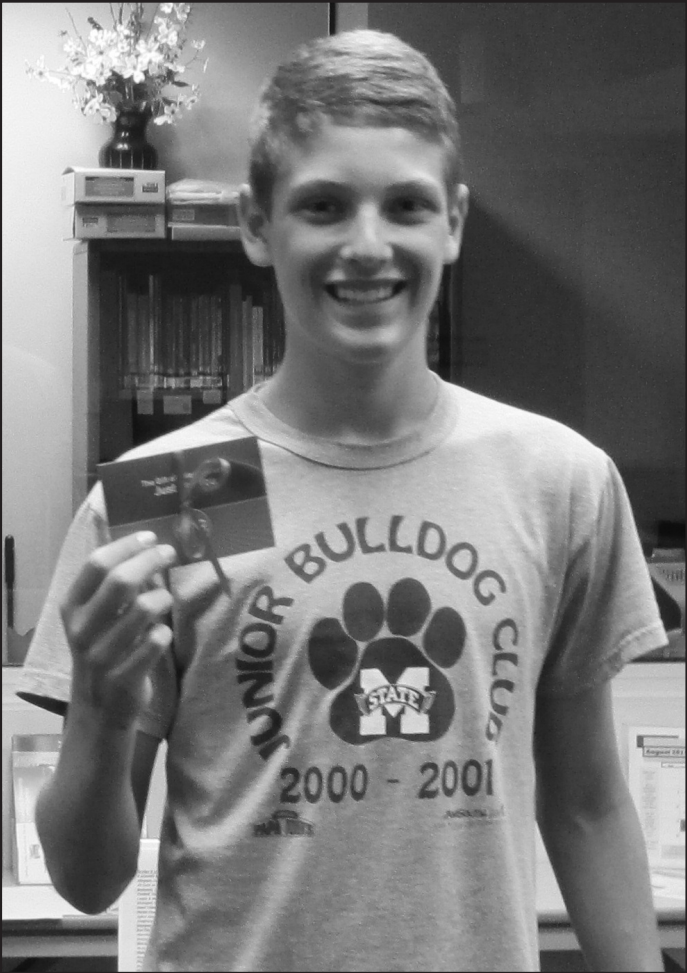


August 'Say it Forward' recipient

BayArea Awards and Engraving, Dennis and Linda Dwyer, were the August recipients of the Niceville-Valparaiso Chamber of Commerce “Say it Forward” award. Pictured from left, Dennis Dwyer, Linda Dwyer, Chairman Patsy Bland of Century 21 Wilson Minger Agency and Niceville Police Chief David Popwell. BayArea Awards will select a business and will recognize them at the September Second Wednesday Breakfast as the “Say It Forward” initiative continues.

Reading winner

To inspire teens to read over the summer the Niceville Public Library offered many incentives as part of the 2014 Summer Reading Program "Spark A Reaction!" After teens read a certain number of books, they received a prize and an entry into the grand prize drawing July 31. Grady Wright, 13, won the drawing and received a \$50 gift card to AMC motion pictures in Destin Commons.



PUBLIC NOTIFICATION

In compliance with the National Environmental Policy Act, Eglin Air Force Base announces the availability of a Draft Environmental Assessment and Finding of No Significant Impact for RCS 13-052, Test Area C-52 Complex for public review and comment.

The Proposed Action of RCS 13-052, Test Area C-52 Complex would be to authorize and implement an increased level of activity for C-52 Complex operations at Eglin AFB to update/validate the current approval process for routine military users and to provide a quick response to priority needs during war or other significant military involvement.

Your comments on this Draft EA are requested. Letters and other written or oral comments provided will be addressed and may be published in the Final EA. Any personal information provided, including private addresses, will be used only to identify your desire to make a statement during the public comment period or to compile a mailing list to fulfill requests for copies of the Final EA or associated documents. However, only the names and respective comments of respondent individuals will be disclosed: personal home addresses and phone numbers will not be published in the Final EA.

The Draft Environmental Assessment and Draft Finding of No Significant Impact are available on the web at www.eglin.af.mil/environmentalassessments.asp from August 22 until September 20, 2014. All area libraries have computers available to the general public and librarians who can provide assistance linking to the document. Hard copies of the document may be available for a limited time by contacting: Mike Spaits, 96th Test Wing Environmental Public Affairs, 101 W. D Ave., Rm. 238, Eglin AFB, Fla., 32542, or email: michael.spaits@us.af.mil. Tel: (850) 882-2836.

The documents will be available on the web from August 22 until September 20, 2014. For more information or to comment on the Proposed Action, contact Mike Spaits, at the contact listed above. Comments must be received by September 24, 2014.



Kiwanis gives school supplies

Kiwanis Club of Niceville-Valparaiso recently donated to the Tools For School project at Sharing and Caring, Niceville. Pictured, George Murphy from Kiwanis and Pat Torre, a volunteer at Sharing and Caring, sort some of the donated supplies.

“Where Buyers and Sellers Meet!”

Beacon CLASSIFIEDS

Help Wanted

MBBA EXECUTIVE DIRECTOR POSITION

The Mid-Bay Bridge Authority is seeking applicants for the position of Executive Director. The Executive Director acts as the chief administrative representative of the Authority and is responsible for the overall administration, financial management, and day-to-day activities of the Authority. The Executive Director reports to the Board of the Authority and acts at the Board's direction. The ideal candidate will be a highly energetic, creative self-starter with a proven track record of leading institutional or department growth. Applicants should have strong verbal and written communication skills and experience in Engineering/Construction, Contract Administration and Financial Management. Qualified applicants should send a cover letter, resume and salary requirements to: Matthews&Jones, LLP Attn:Dawn E. Stuntz 4475 Legendary Dr, Destin, FL 32541 E m a i l : dstuntz@destinlaw.com A complete job description may be requested from dstuntz@destinlaw.com. Resumes will be accepted through August 31, 2014.

Help Wanted

NEWSPAPER DELIVERY

Earn extra cash of \$45 to \$140 or more each week in your spare time! The Bay Beacon seeks a reliable independent contractor to insert, bag, and deliver newspapers Tuesday night. You must be over 21 and have a reliable vehicle, a good driving record, a Florida driver's license, and proof of current liability insurance. No collecting duties. Earnings vary according to route and work load. Stop by the Bay Beacon for an information sheet and to fill out an application. The Beacon 1181 E. John Sims Parkway, Niceville • 678-1080 (Parkway East Shopping Center across from PoFolks)

Comfort Keepers is looking for reliable caregivers for our senior clients. CNA a plus. Apply at ck340.ersp.biz/employment or call 850-279-6310.

Items for Sale

WALT DISNEY COLLECTION

50 figurines to choose from. 850-897-3014. Cash only please.

If you want Niceville, Valparaiso and Bluewater Bay to know, say it in The Beacon

Storage Rental

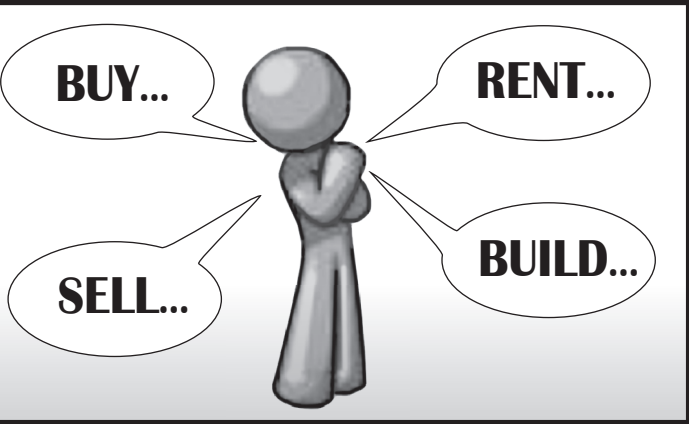
Niceville-24X24 private storage building with electricity available plus paved parking area. Enclosed by 6' chain link fence with double gate. Only \$285/month. 850-974-3345

Yard Sales

Yard sale in BWB. 124 Canterbury Circle. Sat. Aug. 23rd, 8am-2pm. Sports equip, housewares, books, puzzles, linens, glassware, all must go!

Indoor sale. Aug. 22nd, 23rd and 24th. 8am-5pm. 102 Crystal Lake Ln., Valp. Books, furniture and misc.

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in the
Beacon



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3D archery tourney winners

Choctaw Bowmen held a 3D archery tournament July 26 at their range located behind the Mullet Festival grounds. The next tournament will be Aug. 23. Visit choctawbowmen.com for more information.



Winners of the bowhunter class, from left, Justin Herrin, Daryl Todd, and Greg Mayo.



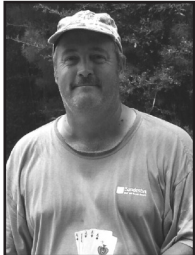
Winner of the youth class was Hunter Bise.



Winners of the traditional class, from left, Eric Stiffler and Kurt Heitman.



Winners of the open class, from left, Tyler Thompson and Jeremy Hartmeyer.



Winner of archery poker was Billy Brown.

Winners of the women's bowhunter's class, from left, Rachel Kinsler, Renee Walker and Myra Schaar.



Appendix D
Section 106 Programmatic Agreement

1 2011 AMENDMENT TO THE PROGRAMMATIC AGREEMENT



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 96TH AIR BASE WING (AFMC)
EGLIN AIR FORCE BASE, FLORIDA

Maria D. Rodriguez
96 CEG/CEVS
501 DeLeon Street, Suite 101
Eglin AFB FL 32542

APR 13 2011

Colonel James B. Linder
Chief of Staff, USASOC
2929 Desert Storm Drive
Fort Bragg NC 28310


Re: Amendment One to the Programmatic Agreement for the Base Realignment and Closure Undertaking

Dear Colonel Linder

Enclosed for your signature is Amendment One to the Programmatic Agreement (PA) for the Base Realignment and Closure (BRAC) undertaking at Eglin Air Force Base (Eglin AFB) in Okaloosa County, Florida. This amendment has been developed in accordance with Stipulation X (Ten) of the BRAC PA in response to the proposed development of new runways and ancillary structures required to meet expanded flight training for the Joint Strike Fighter program at Eglin AFB. As a signatory to the BRAC PA, your signature is required to implement the PA amendment.

Please sign the PA amendment, make a copy for your files, and return the signed original to Eglin AFB. Eglin AFB will submit the PA amendment to the Advisory Council on Historic Preservation (ACHP) for filing. Upon filing the PA amendment with the ACHP, the BRAC PA will be amended.

Sincerely


MARIA D. RODRIGUEZ, GS-14
Chief, Environmental Stewardship Branch

Enclosures:
BRAC PA Amendment Draft Final
Appendix J
Appendix K1
Appendix K2
Appendix K3

REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY
SPECIAL OPERATIONS COMMAND
2929 DESERT STORM DRIVE
FORT BRAGG, NORTH CAROLINA 28310-9110

AOCM-PIA


31 May 11

MEMORANDUM FOR 96th Air Base Wing, Environmental Stewardship,
ATTN: Maria D. Rodriguez, 96 CEG/CEV, 501 DeLeon Street, Suite
101, Eglin Air Force Base, FL 32542

SUBJECT: Amendment One to the Programmatic Agreement (PA) for
the Base Realignment and Closure Undertaking

1. The subject PA Amendment was provided to USASOC for review and signature. USASOC has concurred and is providing your command with original signed documents for your command to obtain other needed signatures. Once all signatures are obtained we ask that you provide USASOC with an original for our files.
2. We appreciate your cooperative efforts to complete this PA as expeditiously as possible. My point of contact for any issues or concerns is Ms. Nell Watson-Crosby, DSN 236-0546 or commercial (910) 396-0546.

Encls


ROBBIE RANDOLPH
Chief, Policy and Integration
Division

**AMENDMENT ONE
TO
THE PROGRAMMATIC AGREEMENT
FOR
THE BASE REALIGNMENT AND CLOSURE (BRAC) UNDERTAKING
AMONG
EGLIN AIR FORCE BASE
SEVENTH SPECIAL FORCES GROUP (AIRBORNE)
JOINT STRIKE FIGHTER PROGRAM
AND
THE FLORIDA STATE HISTORIC PRESERVATION OFFICER**

I. Need for Amendment

In October, 2008, Eglin AFB, the 7SFG (A), JSF, and the SHPO executed a Programmatic Agreement (PA) for the BRAC undertaking. Following the execution of the BRAC PA, Eglin AFB determined that JSF requires new runways and ancillary structures to meet expanded flight training and is currently in the process of considering project alternatives, as further described below, pursuant to a supplemental Environmental Impact Statement required under the National Environmental Policy Act (42 USC 4321 et seq.). This amendment, entered into under the provisions of Stipulation X of the BRAC PA, resolves any adverse effects that may result from the proposed JSF runway construction.

II. Amending Stipulation IV. A - Area of Potential Effects (APE)

- A. The JSF training program requires a primary operating base from which aircraft depart and terminate training activities. In addition, training aircraft will utilize auxiliary fields. The Air Force is considering two project anchor alternatives, with multiple sub-alternatives reflecting different scenarios involving primary bases and auxiliary fields. In Anchor Alternative 1, Eglin Main Base is the primary operating base; for Anchor Alternative 2, the primary operating base is Duke Field. In addition, Anchor Alternative 2 includes construction of up to three new hangars and installation of a new fuel line within an existing utility right-of-way.
- B. For the purposes of this amendment, the APE under Stipulation IV. A is amended to include all JSF runaway alternatives (See Appendix J for a map of the revised APE). The project alternatives and construction requirements are as follows.
 - 1. Alternative 1A - No Runway changes at Eglin AFB plus the use of Duke Field and Choctaw Field as auxiliary training fields. No new construction would be required for Alternative 1A.

2. Alternative 1I - One new runway at Eglin plus the use of Duke Field and Choctaw Field as auxiliary training fields. One new runway with a minimum length and width of 8,000 by 150 feet would be constructed. The APE for this alternative is 2,127.5 acres.
3. Alternative 2A - Duke Field Parallel Runways and Land Helicopter Amphibious (LHA) runway for short take off training plus the use of Choctaw Field. One runway with a minimal length and width of 8500 feet by 150 feet would be constructed parallel to the existing runway at Duke Field. In addition, a LHA strip and separate vertical landing pads would be constructed. Choctaw Field would be the auxiliary training field. The APE for this alternative is 3,750 acres.
4. Alternative 2B - Duke Field Parallel Runways and LHA Plus Eglin Runway 12. Same construction footprint as 2A. Eglin Field would be the auxiliary training field. The APE for this alternative would be the same as Alternative 2A.
5. Alternative 2C - Duke Field Parallel Runways and LHA Plus Eglin Runway 12 and Choctaw Field. Same construction footprint as 2A. Eglin Main and Choctaw Field would be the auxiliary training fields. The APE for this alternative would be the same as Alternative 2A.
6. Alternative 2D - Duke Field Single Runway and LHA Plus Eglin Runway 12 and Choctaw Field. Under this sub-alternative the current runway at Duke Field would be utilized, with Eglin Main and Choctaw Field serving as auxiliary training fields. A new LHA runway would be constructed. The APE for this alternative would 1,280 acres.
7. Alternative 2E- Duke Field Single Runway and LHA Plus Choctaw Field. Under 2E the current runway at Duke Field would be utilized, while Choctaw Field would serve as an auxiliary training field. A new LHA runway would be constructed. The APE for this alternative would be 715 acres.

III. Amending Stipulation IV.B - Identification and Eligibility

- A. Eglin AFB has completed cultural resource inventories for all alternatives. Prehistoric and historic archaeological sites have been recorded in four project alternatives. Historic buildings and structures are present in or adjacent to two project alternatives. No historic properties of religious or cultural significance to the tribes are known or have been reported to Eglin AFB in the revised APE. In consultation with the SHPO, Eglin AFB has made, or is in the process of making, National Register eligibility determinations for newly recorded archaeological sites.
- B. The results of the identification and eligibility are as follows.
 1. Alternative 1A: No National Register eligible archaeological sites have been identified in the APE for this alternative. Two historic districts (Eglin Field and SAC Alert), composed of multiple historic buildings and structures, are located adjacent to the APE. Three additional historic districts (Warehouse, A-22 and Camp Pinchot) are within the

Eglin Main complex but not adjacent to the APE. See map of historic districts in relation to the APE in Appendix K 1.

2. Alternative 1I: Eglin AFB's Site Probability Model indicates that one potential historic homestead area may be present within the APE and will require investigation. Two archaeological sites have been identified: site 8OK1838, a prehistoric Late Paleo-Indian/Early Archaic site; and, site 8OK2417, a middle twentieth century historic military site. Both sites, pending final determinations, are not eligible for listing in the National Register. Fourteen historic buildings and structures, individually eligible for listing in the National Register, are within the APE for this alternative. See map of historic buildings in relation to the APE in Appendix K 2.
3. Alternatives 2A, 2B, 2C, 2D, and 2E: Two archaeological sites have been identified in the APE for alternatives 2A, 2B, and 2C. Site 8OK2485, a terminal Weeden Island Fort Walton component is pending an eligibility determination. Site 8OK333, a Late Paleo/Early Archaic site, is National Register eligible. No historic properties are located within Alternative 2D or 2E. See map of archaeological sites in relation to the APE in Appendix K 3.
- C. Should the Air Force select Alternative 1I, Eglin AFB will ensure that any homestead site, if present in the homestead area, is recorded by a professional meeting the qualification standards in Stipulation V of the BRAC PA following the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. Eglin AFB, in consultation with the SHPO, will evaluate the homestead site for National Register eligibility in accordance with Stipulation III.C of the BRAC PA.

IV. Amending Stipulation IV. D - Resolution of Adverse Effects

- A. Historic Properties in Alternatives 1A, 1I, 2A, 2B, 2C may be adversely affected should any of these alternatives be selected by the Air Force for the construction of new runways and ancillary facilities as further discussed below.
 1. No archaeological sites or historic buildings/structures will be affected during construction if the Air Force selects Alternative 1A. Aircraft training operations are projected to increase noise levels in and around Eglin Main Base, however. Adverse effect to the two adjacent historic districts may occur if, because of increased noise levels, Eglin AFB decides to abandon any building that is a contributing property to the districts. Under this condition, Eglin AFB will follow the procedures established for Air Field operations under Stipulation IV.D.3 to treat any adverse effects to the districts resulting from increased noise levels.
 2. Should Alternative 1I be selected, and should a historic homestead be recorded and determined to be National Register eligible, Eglin AFB will attempt to avoid the site in accordance with Stipulation III.E.1, as applicable. If avoidance is not possible, Eglin AFB shall coordinate with JSF and follow the procedures in Stipulation III.E.2 through III.E.4, as applicable, to resolve the adverse effects. Should increased noise levels lead

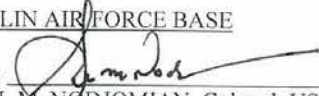
Eglin AFB to abandon any one of the individually eligible historic buildings within the APE, then Eglin AFB will follow Stipulation IV.D. 3 to treat any adverse effects to the buildings and structures.

3. If any one of Alternatives 2A, 2B or 2C is selected, Eglin AFB will attempt to avoid sites 8OK2485 and 8OK333 in accordance with Stipulation III.E.1 of the BRAC PA, as applicable. If avoidance is not possible, Eglin AFB shall coordinate with JSF and follow the procedures in Stipulation III.E.2 through III.E.4, as applicable, to resolve the adverse effects.

V. Execution

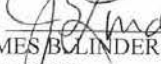
Execution and implementation of Amendment One to the PA evidences that Eglin AFB, 7SFG (A) and JSF, have satisfied their responsibilities under Section 106 of the NHPA for BRAC related runway construction at Eglin AFB.

EGLIN AIR FORCE BASE

By: 
SAL M. NODJOMIAN, Colonel, USAF
Commander, 96th Air Base Wing

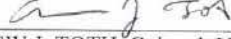
Date: 4 APR 11

SEVENTH SPECIAL FORCES GROUP (AIRBORNE)

By: 
JAMES BULINDER
Colonel, GS
Chief of Staff

Date: 26 MAY 2011

JOINT STRIKE FIGHTER PROGRAM

By: 
ANDREW J. TOTH, Colonel, USAF
Commander, 33d Fighter Wing

Date: 6 APR 11

FLORIDA STATE HISTORIC PRESERVATION OFFICER

By: 
SCOTT M. STROH III
Florida State Historic Preservation Officer

Date: 4/8/11


Eglin AFB to abandon any one of the individually eligible historic buildings within the APE, then Eglin AFB will follow Stipulation IV.D. 3 to treat any adverse effects to the buildings and structures.

3. If any one of Alternatives 2A, 2B or 2C is selected, Eglin AFB will attempt to avoid sites 8OK2485 and 8OK333 in accordance with Stipulation III.E.1 of the BRAC PA, as applicable. If avoidance is not possible, Eglin AFB shall coordinate with JSF and follow the procedures in Stipulation III.E.2 through III.E.4, as applicable, to resolve the adverse effects.

V. Execution


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Commander, 96th Air Base Wing


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Date: 4/6/11

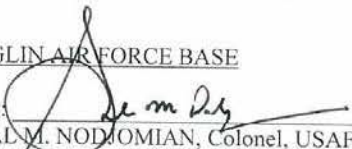
Eglin AFB to abandon any one of the individually eligible historic buildings within the APE, then Eglin AFB will follow Stipulation IV.D. 3 to treat any adverse effects to the buildings and structures.

3. If any one of Alternatives 2A, 2B or 2C is selected, Eglin AFB will attempt to avoid sites 8OK2485 and 8OK333 in accordance with Stipulation III.E.1 of the BRAC PA, as applicable. If avoidance is not possible, Eglin AFB shall coordinate with JSF and follow the procedures in Stipulation III.E.2 through III.E.4, as applicable, to resolve the adverse effects.

V. Execution

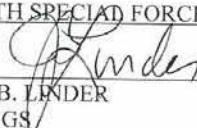
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FLORIDA STATE HISTORIC PRESERVATION OFFICER

By: 
SCOTT M. STROH III
Florida State Historic Preservation Officer

Date: 4/8/11

Concurring Parties:

MICCOSUKEE TRIBE OF INDIANS OF FLORIDA

By: _____ Date: _____

THE SEMINOLE TRIBE OF FLORIDA

By: _____ Date: _____

POARCH BAND OF CREEK INDIANS OF ALABAMA

By: _____ Date: _____

MUSKOGEE (CREEK) NATION OF OKLAHOMA

By: _____ Date: _____

THLOPTHLOCCO TRIBAL TOWN OF THE CREEK (MUSKOGEE) TRIBE

By: _____ Date: _____

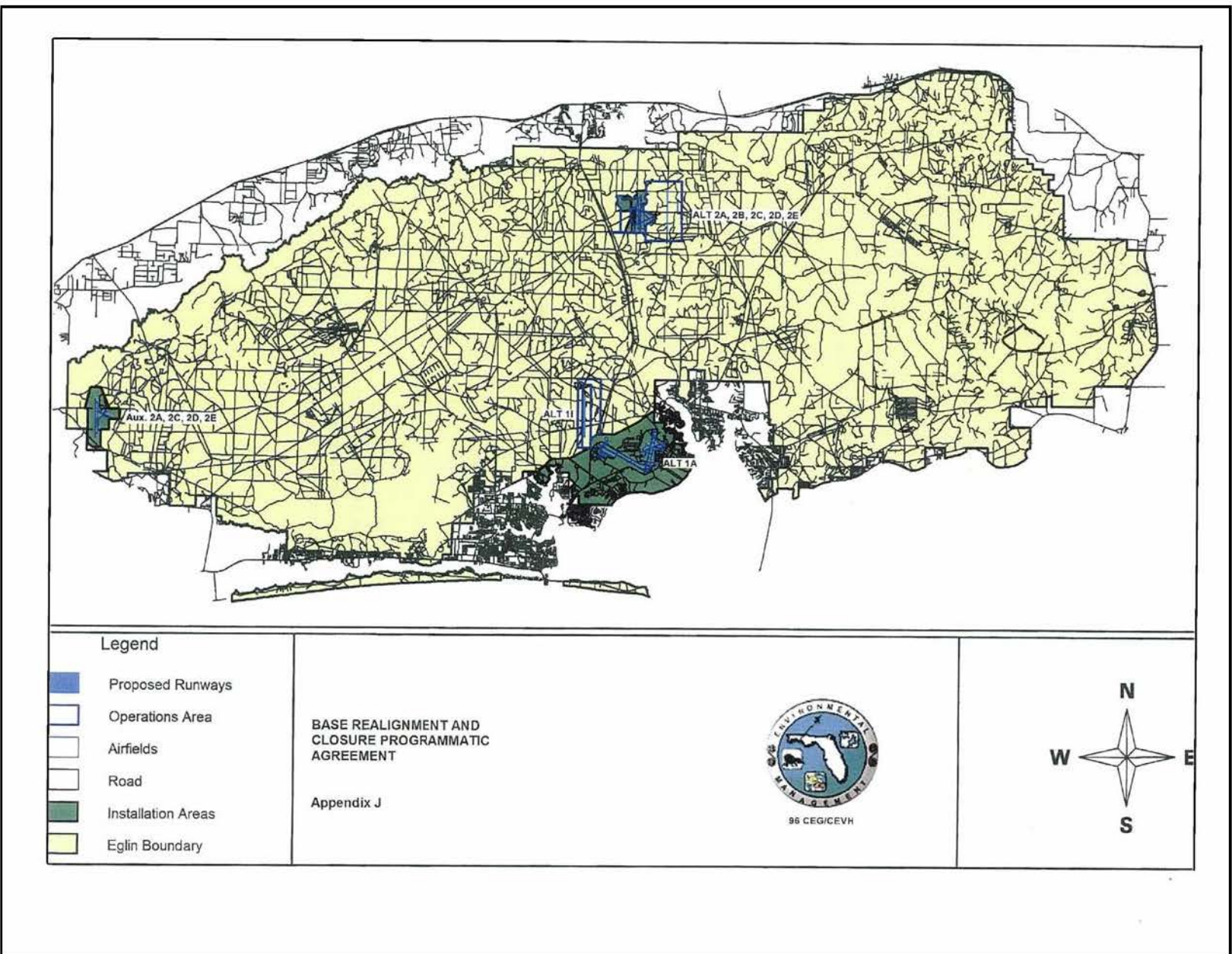
Appendices

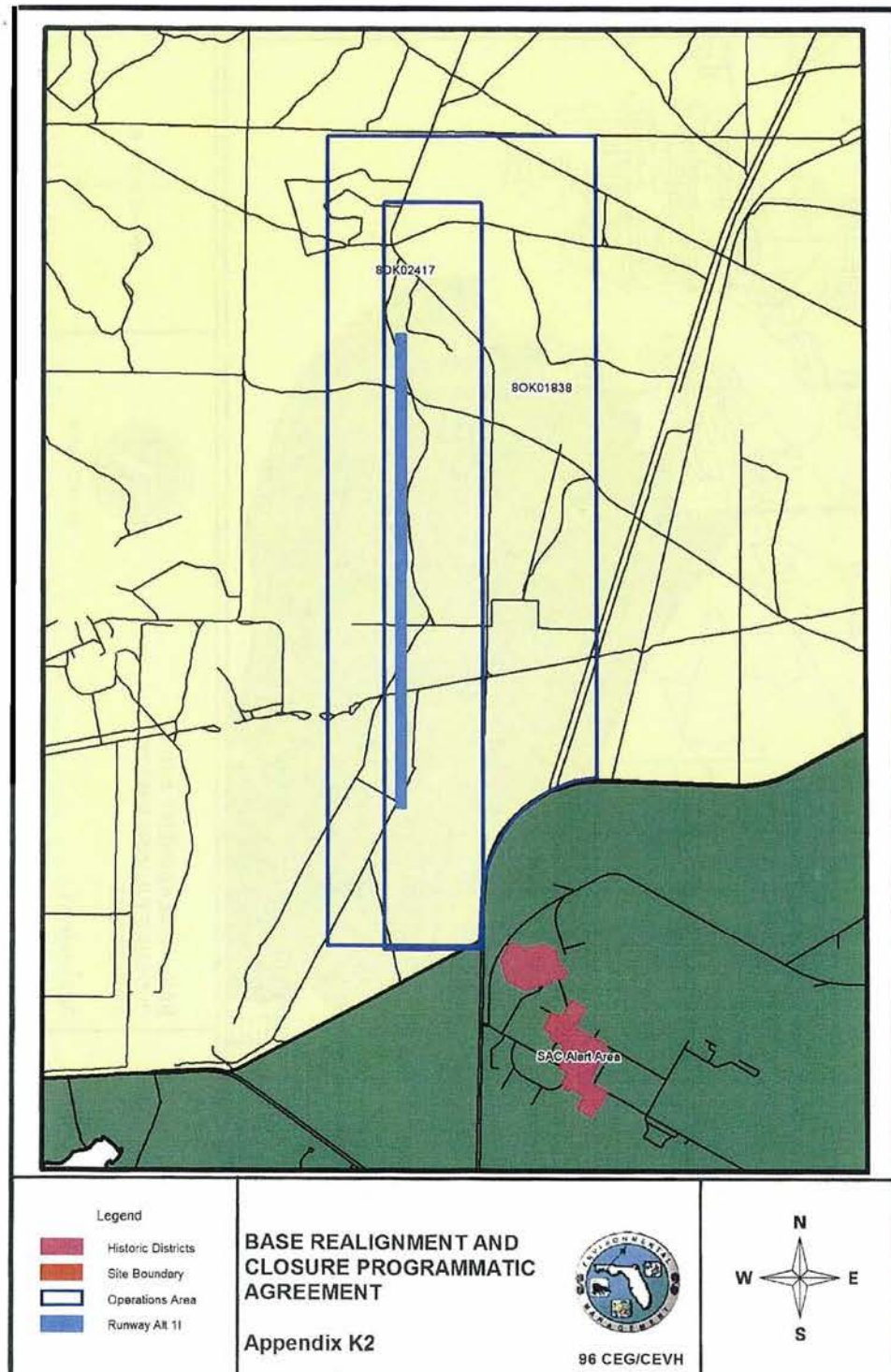
J: Revised map of the APE showing the JSF runway alternatives.

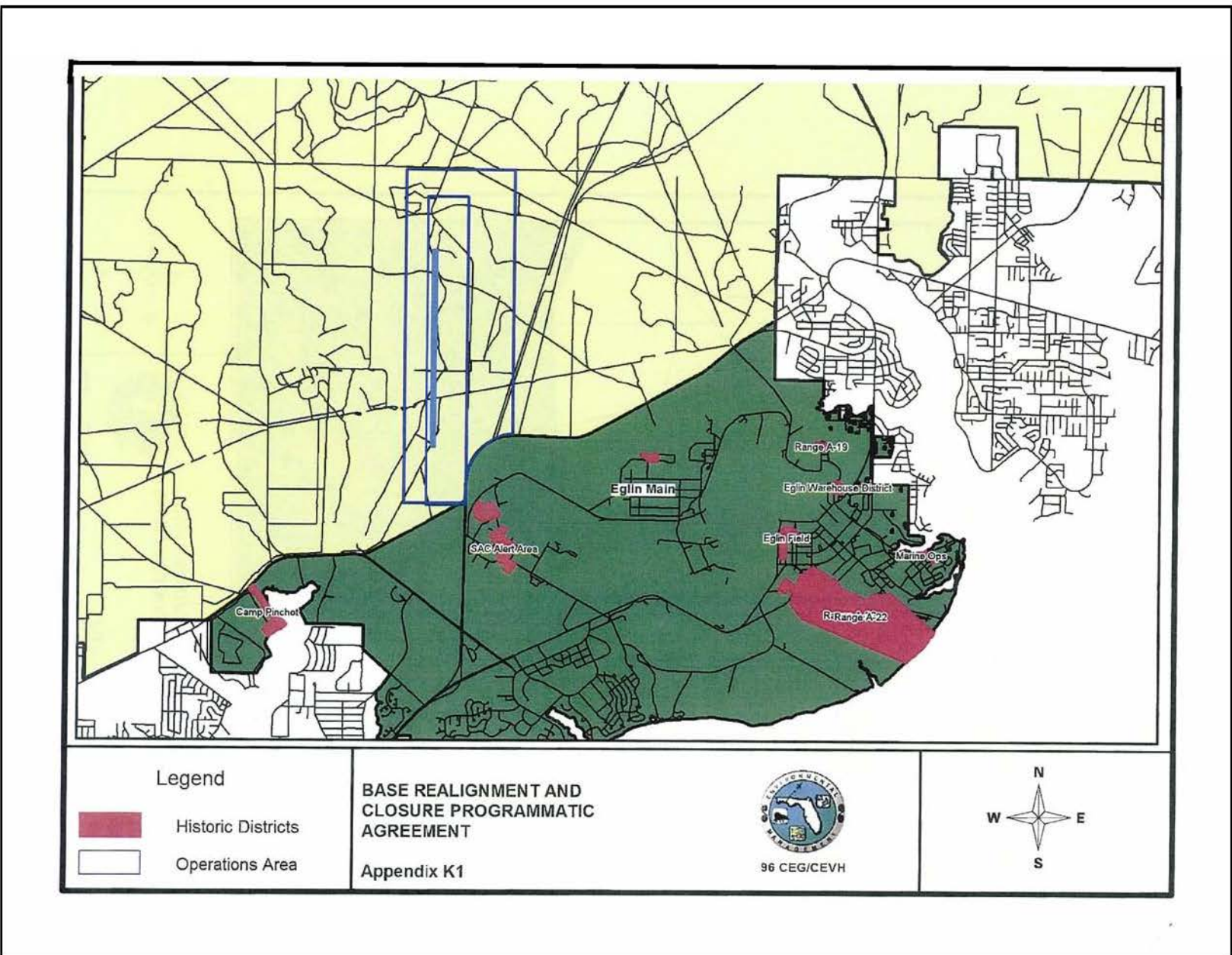
K1: Map of historic districts in relation to revised APE for Alternative 1A.

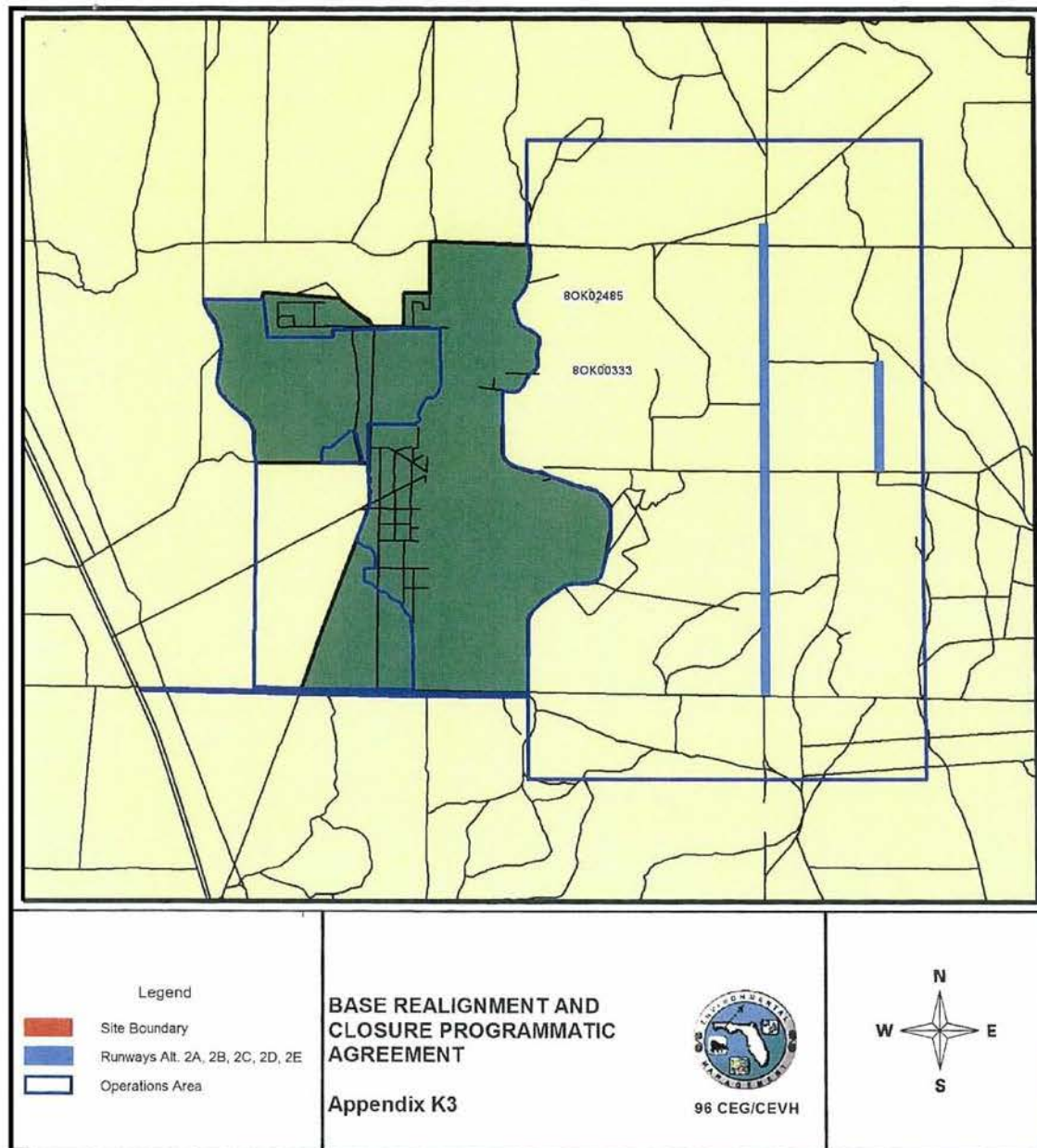
K2: Map of individually eligible historic buildings in relation to revised APE for Alternative 1I.

K3: Map of archaeological sites in relation to revised APE for Alternatives 2A, 2B, and 2C.









1 2008 PROGRAMMATIC AGREEMENT



**PROGRAMMATIC AGREEMENT
AMONG
EGLIN AIR FORCE BASE
SEVENTH SPECIAL FORCES GROUP (AIRBORNE)
JOINT STRIKE FIGHTER PROGRAM
AND
THE FLORIDA STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE PROPOSED IMPLEMENTATION OF THE BASE REALIGNMENT AND
CLOSURE (2005) DECISION AND RELATED ACTIONS,
EGLIN AIR FORCE BASE, FLORIDA**

WHEREAS, in response to the 2005 Base Realignment and Closure (BRAC) decision approved by Congress, the U.S. Army's Seventh Special Forces Group (Airborne) [7SFG(A)] and the Joint Strike Fighter (JSF) pilot training program, consisting of elements from the U.S. Navy, Marines and Air Force, will relocate to Eglin Air Force Base (Eglin AFB), Florida (See vicinity maps, Appendix A); and

WHEREAS, the Air Force, Army, Navy and Marines, have identified four separate but interrelated needs that must be met to implement the BRAC recommendations: (1) a cantonment for the 7SFG(A); (2) range training areas for the 7SFG (A); (3) a cantonment for the JSF; and (4) flight training areas for JSF. Eglin AFB will be responsible for meeting these needs, which will require construction, demolition, renovation and operational use of lands and facilities throughout Eglin AFB (the "Undertaking"); and

WHEREAS, the Area of Potential Effects (APE) for the undertaking, as further described below, contains multiple historic buildings, structures and archaeological sites as well as five historic districts that are either listed in or eligible for listing in the National Register of Historic Places (NRHP); and

WHEREAS, Eglin AFB has consulted with Florida State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) pursuant to 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C 470f), has determined that the undertaking will have an adverse effect on historic properties; and

WHEREAS, Eglin AFB has provided the public with an opportunity to comment on this undertaking through coordinated compliance with Section 106 and the National Environmental Policy Act, as set forth in 36 CFR Part 800.8; and

WHEREAS, Eglin AFB has consulted with the 7SFG (A) Command and the JSF Command and invited them to be signatories to this Programmatic Agreement (PA); and

WHEREAS, Eglin AFB has consulted with SAC Memorial Project, a private veterans organization, concerning the adverse effects of the undertaking to the SAC Alert Historic District and has invited it to be a concurring party to this PA; and

WHEREAS, Eglin AFB has also consulted with four federally recognized tribes, the Miccosukee Tribe of Indians of Florida, the Seminole Tribe of Florida, the Poarch Band of Creek Indians of Alabama, and the Muskogee (Creek) Nation of Oklahoma (the tribes), concerning places of religious and cultural significance to them that may be affected by the undertaking and has invited the tribes to participate as concurring parties to this agreement; and

WHEREAS, Eglin AFB, in developing this PA, has met the requirements of Section 8 (Demolition of Historic Properties) of the Programmatic Agreement between Eglin AFB, the SHPO and the ACHP regarding the preservation and protection of historical and archaeological resources located at Eglin AFB, which was implemented on February 14, 2003 (Eglin Air Force Base 2003);

NOW THEREFORE, the signatories to this PA agree that the proposed BRAC development within Eglin AFB will be implemented in accordance with the following stipulations in order to take into account the effects of the undertaking.

Background

I. Description of the Undertaking

- A. In compliance with the BRAC recommendations, Eglin AFB will accommodate the training needs of the 7SFG(A) and the JSF commands. For 7SFG(A), this means building a new cantonment; utilizing 13 training ranges (which will require either new range construction or modifying existing ranges as needed); conducting ground and water-to-shore maneuvers in existing closed training areas; and constructing two new drop zones for air-to-ground training. For JSF, the undertaking will entail modifying an existing portion of the Eglin Main airfield to construct a new cantonment; utilizing three existing air fields for flight training; and using multiple bombing ranges for target practice. The undertaking will involve renovation and demolition of existing buildings and structures, construction of new buildings and facilities, construction-related ground disturbance, ground disturbances associated with operational use of bombing ranges, and noise generated through aircraft operation.
- B. Because the 7SFG(A) and JSF components of the undertaking are functionally and spatially distinct, this PA is organized to resolve the adverse effects of each component in succession. Specific stipulations relevant to both components are cited where applicable; general stipulations follow at the end of the document.

II. Site Probability Model

- A. Eglin AFB has developed an installation-wide archaeological Site Probability Model. The model is based upon the environmental signature of known prehistoric archaeological sites. It correlates site location, landform and proximity to potable water to predict the expected location of sites in areas that have not yet been inventoried. Eglin AFB uses the Site Probability Model to characterize the landscape within the base as either high or low probability for prehistoric archaeological sites (Eglin Air Force Base Historic Preservation).

- B. Eglin AFB has also identified the probable locations of former historic homesteads that are now archaeological sites by researching archival records on homestead claims. These results, plus the predicted location of prehistoric archaeological sites, are used to define the probability areas. The Site Probability Model is used to guide identification efforts; high probability areas are surveyed whereas low probability areas are typically not surveyed.
- C. The SHPO accepts the validity of the Site Probability Model and its use for identification in this manner. Eglin AFB has used, and will continue to use, the Site Probability Model to determine where to conduct additional archaeological survey needed for the 7SFG(A) and JSF components of the BRAC undertaking.

Stipulations

III. Seventh Special Forces Group (Airborne)

A. Area of Potential Effects

The APE for the 7SFG(A) component is shown on the map in Appendix B and consists of the following elements

1. The Cantonment Area
2. Group 1 Training Ranges
3. Group 2 Training Ranges
4. Closed Training Areas
5. Drop Zones
6. Shoreline Infiltration Training Areas

Note: Infiltration training at shoreline/riverine sites for the 7SFG(A) is intended within Eglin AFB. Planning, however, has not identified those areas and as a consequence they are not currently included in the APE for the BRAC undertaking. When 7SFG(A) can describe the shoreline infiltration training activities that will take place, and identifies the location and extent of the areas needed for training, then Eglin AFB, in consultation with 7SFG(A), shall prepare an amendment to this PA following Stipulation X. The amendment shall identify the training activities to be conducted, the location and extent of the training areas, a description of all recorded cultural resources within these areas and an assessment of whether or not additional survey is needed. The amendment will commit Eglin AFB to comply with the terms of this PA in resolving the adverse effects of shoreline/riverine training for the BRAC undertaking.

B. Identification

Eglin AFB, in consultation with the SHPO, has determined that historic properties are present within the 7SFG(A) component of the BRAC APE. The results of identification and NRHP determinations are presented in Appendix C and further summarized below.

1. Cantonment

Four cultural resources surveys, covering 69.5 acres, have been conducted in the 500-acre APE for the proposed 7SFG(A) Cantonment. All high probability areas have been surveyed and no cultural resources have been identified. Survey of the Cantonment area is complete.

2. Group 1 Training Ranges

Three cultural resources surveys, covering 14.4 acres, have been conducted in the 27.7-acre APE for the Group 1 Training Ranges. All high probability areas have been surveyed and no cultural resources have been identified. Survey of the Group 1 Training Ranges is complete.

3. Group 2 Training Ranges

(a) Thirty-eight cultural resources surveys, covering 5,311 acres, have been conducted within the 9,015-acre APE for the Group 2 Training Ranges. All high probability areas have been surveyed, except for 119 acres, which were excluded from survey due to the presence of unexploded ordinance. Survey of the Group 2 Training Ranges is complete.

(b) The surveys identified 32 archaeological sites and seven buildings. Eglin AFB, in consultation with SHPO, has determined that 21 of the archaeological sites are not NRHP eligible; however, 11 sites may be eligible. Four of the seven buildings are NRHP eligible and three of the buildings may be eligible (See Appendix C).

4. Closed Training Areas

(a) Two hundred two cultural resources surveys, covering 40,113 acres, have been conducted within the 62,222-acre APE for the Closed Training Areas. The surveys targeted only those areas that the Site Probability Model indicated have a high probability for historic archaeological sites. At Eglin AFB, historic archaeological sites have an above ground expression whereas prehistoric archaeological sites are typically found in subsurface contexts and are thus protected from training-related surface disturbances. Prehistoric archaeological sites have also been recorded during survey where the historic and prehistoric high probability areas have overlapped. The remaining high probability areas for prehistoric archaeological sites within the APE for the Closed Training Areas, however, will not be surveyed for the BRAC undertaking because training related disturbances will be limited to surface ground disturbance only, as further discussed in Stipulation III.D.4.(a)

(b) The surveys have identified a total of 285 archaeological sites and two buildings. Eglin AFB, in consultation with the SHPO, has determined that 243 sites are not NRHP eligible; two sites are NRHP eligible and 40 sites may be eligible for NRHP listing. The two buildings are eligible for NRHP listing (See Appendix C). Eglin

AFB has completed SHPO consultation on all surveys except for seven reports. Eglin AFB will complete SHPO consultation on the results of these surveys and make determinations of NRHP eligibility, as needed, following the procedures in Stipulation III.C below.

- (c) Additional survey of the high probability areas for historic archaeological sites is required to complete identification for the Closed Training Areas. All surveys shall be conducted by a professional meeting the qualifications standards in Stipulation V. The surveys will be carried out following the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation included herein by reference. As new surveys are completed, Eglin AFB will submit survey reports to SHPO for review.

5. Drop Zones

Ten cultural resources surveys, covering 606 acres, have been conducted within the 764-acre APE for the Drop Zones. All high probability areas have been surveyed resulting in the identification of two archaeological sites. Survey of the Drop Zones is complete. Eglin AFB, in consultation with the SHPO, has determined that one of the archaeological sites is not NRHP eligible and one site may be NRHP eligible (See Appendix C). Eglin AFB, in consultation with SHPO, shall determine the NRHP eligibility of the site following Stipulation III.C.

6. Shoreline Infiltration Training Areas

See note in Stipulation III.A.

C. National Register Eligibility

1. At Eglin AFB, archaeological sites require subsurface testing to determine their NRHP eligibility status. Any archaeological site that will be adversely affected by the undertaking that has not been previously evaluated will be tested for NRHP eligibility. Only those sites that are determined to be NRHP eligible will be subject to data recovery, if, after further consultation, Eglin AFB determines data recovery is appropriate. Eglin AFB will not be required to consult with SHPO prior to eligibility testing. All testing of archaeological sites will be conducted by a professional who meets the qualification standards in Stipulation V. If an archaeological site can be avoided in accordance with Stipulation III.E.1, Eglin AFB may choose not to test the site for NRHP eligibility until a later time. Under these circumstances, the undertaking may take place provided that any measures necessary to ensure avoidance are put in place.
2. Eglin AFB, in consultation with SHPO, will make a determination of NRHP eligibility for any building or structure not previously evaluated that will be adversely affected by the undertaking. Additional recording may be required to update structural inventory forms, or similar documents, which Eglin AFB will submit to SHPO for consultation on NRHP eligibility. All recording of buildings or structures will be conducted by a

professional who meets the qualification standards in Stipulation V. Only those historic buildings and structures that are determined NRHP eligible shall be subject to treatment. If, however, the building or structure will not be affected following Stipulation III.E.1, then Eglin AFB may choose not to consult on its eligibility status until a later time. Under these circumstances, the undertaking may take place provided that any measures necessary to ensure avoidance are put in place.

3. In those cases where Eglin AFB must make a determination of NRHP eligibility because an archaeological site or historic building or structure may be adversely affected, or it chooses to make an NRHP eligibility determination following avoidance, Eglin AFB will follow the procedures presented below.
 - (a) Eglin AFB shall submit an archaeological testing report or an updated structural inventory form, as applicable, to SHPO for a 30-day review along with its eligibility recommendations. If a prehistoric archaeological site is tested, Eglin AFB shall also submit the testing report to the tribes. The tribal review will be concurrent with the SHPO review.
 - (b) If the SHPO does not respond within the 30-day comment period, Eglin AFB will assume that SHPO has no objection to its eligibility determination. Eglin AFB shall take into consideration any comments and recommendations received by the tribes during the 30-day review period in making its eligibility determination.
 - (c) Where there is agreement on eligibility between Eglin AFB and the SHPO, the eligibility determination will be accepted by both parties. Any disagreement between Eglin AFB and the SHPO over the eligibility determination shall be submitted by Eglin AFB to the Keeper of the National Register for determination pursuant to 36 CFR Part 63. The Keeper's determination shall be final.

D. Assessment of Effects

The 7SFG(A) component of the BRAC undertaking will involve construction-related ground disturbance, as well as ground disturbances associated with the operational use of firing ranges and training areas that contain NRHP eligible archaeological sites and buildings. As such, the characteristics that make these historic properties eligible for listing in the NRHP may be altered in ways that diminish their integrity of location, setting, materials or other aspects of integrity.

1. The Cantonment Area

There are no historic properties within the Cantonment Area. The proposed construction of the Cantonment Area will have no effect to historic properties. Should archaeological deposits be discovered during construction, however, Eglin AFB will follow the provisions for unanticipated discoveries in Stipulation VI.

2. Group 1 Training Ranges

There are no historic properties within the Group I Training Ranges. The proposed construction of the Group I Training Ranges will have no effect to historic properties. Should archaeological deposits be discovered during construction, however, Eglin AFB will follow the provisions for unanticipated discoveries in Stipulation VI.

3. Group 2 Training Ranges

- (a) Ground disturbance relating to the construction of new ranges or modifications to existing ranges, plus the operational use of the ranges after construction, may adversely affect the 11 recorded archaeological sites that are potentially eligible to the NRHP as well as the four NRHP eligible buildings and the three buildings that are potentially eligible for NRHP listing.
- (b) Any NRHP eligible archaeological site or building that cannot be protected through avoidance in accordance with Stipulation III.E.1 will be adversely affected by the undertaking. Eglin AFB shall coordinate with 7SFG(A) and follow the procedures in Stipulation III.E.2 through III.E.4, as applicable, to resolve the adverse effects.

4. Closed Training Areas

- (a) Operational use of the Closed Training Areas will result in disturbances to ground surfaces only. These disturbances will occur through pedestrian use of the Training Areas by small units of trainees. All vehicle traffic will be confined to existing roads and trails. The trainees will use existing bivouac sites. There will be no digging or trenching or other subsurface disturbances during the training use of the Closed Training Areas by the 7SFG(A).
- (b) Surface ground disturbance relating to the operational use of the Closed Training Areas, may adversely affect the 44 recorded archaeological sites and buildings that are either NRHP eligible or potentially eligible for listing. Additional NRHP eligible archaeological sites and buildings may be identified during continued survey in the Closed Training Areas.
- (c) Any NRHP eligible archaeological site or building that cannot be protected through avoidance in accordance with Stipulation III.E.1 will be adversely affected by the undertaking. Eglin AFB shall coordinate with 7SFG(A) and follow the procedures in Stipulation III.E.2 through III.E.4, as applicable, to resolve the adverse effects.
- (d) Eglin AFB will exclude from all ground maneuvers those portions of the Closed Training Areas that have yet to be surveyed for cultural resources and will inform the 7SFG(A) where the exclusions apply. Eglin AFB will notify 7SFG(A) when the requirements of this PA have been met for these areas and when these areas can be used for training purposes.

5. Drop Zones

- (a) Construction related activities and/or operational use of the Drop Zones may adversely affect the one archaeological site that may be NRHP eligible. The site will either be avoided in accordance with the procedures in Stipulation III.E.1, or if avoidance is not possible or desirable, Eglin AFB will, as needed, make a determination of NRHP eligibility in accordance with Stipulation III.C.
- (b) Should the site be determined to be NRHP eligible, and if it cannot be protected through avoidance, the site will be adversely affected by the undertaking. Eglin AFB shall coordinate with 7SFG(A) and conduct either archaeological data recovery in accordance with Stipulation III.E.2 or alternative mitigation pursuant to Stipulation III.E.4, to resolve the adverse effects.

6. Shoreline Infiltration Training Areas

See note in Stipulation III.A.

E. Resolution of Adverse Effects

All historic properties will be avoided whenever possible for the duration of this agreement. Where avoidance is not possible or desirable, Eglin AFB shall resolve the adverse effects of the BRAC undertaking. Avoidance, archaeological data recovery, architectural treatment and alternative mitigation will be achieved in the following manner.

1. Avoidance Measures

- (a) Avoidance and preservation in place of archaeological or architectural resources will require use of highly visible avoidance measures installed on the ground around the recorded limits of the sites or buildings for the purpose of communicating “off limits” to trainees. The avoidance measures shall include one or more of the following as needed.
 - (1) Flagging: Installing temporary flagging around the limits of the site or building using colored flagging tape.
 - (2) Painting trees/vegetation: Applying highly visible paint to trees or other vegetation.
 - (3) Temporary fencing: Installing temporary fencing around the limits of the site or building using removable fencing, such as chain link fencing or wire and T posts.
 - (4) Other removable barriers: Installing removable barriers, such as earthen berms or portable concrete barriers.

- (5) Signage: Installing permanent or semi-permanent signage at eye level in proximity to the site or building. Eglin AFB shall employ a universally recognizable symbol printed on metal or other durable material that is mounted on metal stakes or posts and set on the ground around the limits of the site or building as needed.
- (6) Gating and other permanent barriers: Constructing permanent barriers, such as gates, around the limits of sites or buildings.
- (b) Eglin AFB will map the location of all archaeological sites and historic buildings to be avoided for the BRAC undertaking and describe in writing the avoidance measures used for each site.
- (c) Eglin AFB shall install all avoidance measures and ensure that for the BRAC undertaking all avoidance measures are in place on the ground before a training range or training area can be used for training purposes. Eglin AFB will not be required to consult with the SHPO or other consulting parties when avoidance can be achieved, but may seek their advice, as needed.
- (d) To ensure that avoidance is achieved in a consistent and coordinated manner, Eglin AFB shall
 - (1) Consult with 7SFG(A) to determine the color and type of marking such as flagging tape to be used for avoidance.
 - (2) Consult with 7SFG(A) and the SHPO to select an avoidance symbol to be used for signage.
 - (3) Consult with 7SFGA to select a suitable paint color to be used for avoidance.
 - (4) Consult with SHPO and 7SFG (A) to determine what permanent barriers can be used and how they should be installed so as to avoid affecting historic properties
 - (5) Provide 7SFG (A) with copies of the maps identifying all avoided sites and buildings, submitted in a form useful to 7SFG(A), and will periodically update these maps as needed. A copy of the maps and any updates will also be provided to the SHPO with a written description of the avoidance measures used for each historic property.
 - (6) Periodically brief appropriate 7SFG(A) staff on the importance of protecting cultural resources, the sensitivity of cultural resources data, and the need to limit access to this data.

2. Archaeological Data Recovery

All archaeological data recovery shall be conducted by a professional meeting the qualification standards in Stipulation V. The data recovery will be carried out following the Secretary of the Interior's Standard and Guidelines for Archaeology and Historic Preservation included herein by reference. Eglin AFB will ensure that archaeological data recovery is conducted in the following manner.

- (a) A data recovery plan shall be prepared. At a minimum, the data recovery plan shall include:
 - (1) A description of the proposed action that will adversely affect archaeological sites
 - (2) A description of each archaeological site and how each may be affected by the proposed action
 - (3) A set of research questions and objectives
 - (4) A description of methods to be used in collecting the data needed to address the research questions
 - (5) A description of analytical techniques to be used in addressing the research questions
 - (6) A description of the nature of materials and features expected to be revealed, materials expected to be collected, and all other materials to be generated including reports and associated media.
- (b) Eglin AFB shall submit the data recovery plan to SHPO for 30 day review. If the archaeological site is prehistoric, Eglin AFB shall also submit the data recovery plan to the tribes for 30 day review. The tribal review will be concurrent with the SHPO review.
- (c) If the SHPO or one or more of the tribes, as applicable, does not respond within 30 days of submittal, Eglin AFB shall assume that party has no objection to the proposed data recovery. Eglin AFB, in completing the data recovery plan, will take into account any comments it does receive from the SHPO or the tribes within the 30-day review period.
- (d) Once Eglin AFB has completed the data recovery plan, it shall ensure that the data recovery is conducted in accordance with the plan.
- (e) All archaeological data recovery shall be reported within 12 months of the end of field work. Eglin AFB shall ensure that a draft of the report is prepared and will submit the draft to SHPO and the tribes, as applicable, for 30 day review. Any comments received by Eglin AFB from SHPO or any of the tribes, as applicable,

within the review period shall be considered in completing the report. Eglin AFB shall provide the SHPO and the tribes with two copies of any final report.

3. Architectural Treatment

All architectural treatment shall be conducted by a professional who meets the qualification standards in Stipulation V. The architectural treatment will be carried out following the Secretary of the Interior's Guidelines for Architectural and Engineering Documentation (HABS/HAER Level II) included herein by reference. Eglin AFB will ensure that architectural treatment is conducted in the following manner.

- (a) A treatment plan, including a scope of work, will be prepared describing in detail the proposed treatment. The treatment plan shall at a minimum include
 - (1) A description of the proposed action that will adversely affect historic buildings or structures
 - (2) A description of each building or structure and how each may be affected by the proposed action
 - (3) A set of research questions and recording objectives
 - (4) A description of methods to be used in collecting data needed to achieve the research questions and recording objectives
- (b) Eglin AFB shall submit the treatment plan to SHPO for 30 day review.
- (c) If the SHPO does not respond within 30 days of submittal, Eglin AFB shall assume the SHPO has no objection to the proposed treatment plan. Eglin AFB, in completing the treatment plan, will take into account any comments it does receive from the SHPO within the 30-day review period.
- (d) Once the treatment plan is completed, Eglin AFB shall ensure that the treatment is conducted in accordance with the plan.
- (e) All architectural treatment shall be reported within 12 months of the end of field work. Eglin AFB shall ensure that a draft treatment report is prepared and will submit the draft to SHPO for 30 day review. Any comments received by Eglin AFB from SHPO within the review period shall be considered in completing the report. Eglin AFB shall provide the SHPO with two copies of any final report.

4. Alternative Mitigation

If Eglin AFB determines that resolution of adverse effects can best be achieved through means other than archaeological data recovery or architectural treatment, as presented in Stipulation III.E.2 and III.E.3 above, it may adopt an alternative mitigation strategy on a

case-by-case basis as presented below. All alternative mitigation shall be conducted by a professional meeting the qualification standards in Stipulation V.

- (a) If the alternative mitigation will apply to historic buildings and structures or historic archaeological sites, Eglin AFB will submit a mitigation plan to the SHPO for 30 day review. Eglin AFB shall take into consideration any comments it receives from the SHPO during the 30 day review period. If the SHPO does not respond within the 30-day review period, Eglin AFB shall assume the SHPO has no objection to the alternative mitigation.
- (b) If the alternative mitigation will apply to prehistoric archaeological sites, or historic archaeological sites with a prehistoric component, Eglin AFB will submit a mitigation plan to the SHPO and the tribes for 30 day review. Tribal review will be concurrent with SHPO review. Eglin AFB shall take into consideration any comments it receives from the SHPO or any one of the tribes during the 30 day review period. If the SHPO, or one or more of the tribes, do not respond within the 30-day review period, Eglin AFB shall assume that party has no objection to the alternative mitigation.
- (c) All alternative mitigation shall be reported within 12 months of the end of field work. Eglin AFB shall ensure that a draft of the report is prepared and will submit the draft to SHPO and the tribes, as applicable, for 30 day review. Any comments received by Eglin AFB from SHPO or any of the tribes, as applicable, within the review period shall be considered in completing the report. Eglin AFB shall provide the SHPO and the tribes each with two copies of any final report.

IV. Joint Strike Fighter

A. The APE for the JSF component is shown on the map in Appendix D and consists of the following elements

- 1. The Cantonment area
- 2. Air Fields: Eglin Field, Choctaw Field, Duke Field
- 3. Bombing ranges (B-75, B-82, C-52E, C-62)

B. Identification and Eligibility

Eglin AFB, in consultation with the SHPO, has determined that historic properties are present within the JSF portion of the APE. The results of identification and NRHP determinations are summarized below.

1. Cantonment

- (a) One cultural resources survey has been conducted within the 230-acre APE for the JSF Cantonment. No archaeological sites have been recorded. Much of the Cantonment area is heavily disturbed due to intensive development. Eglin AFB, in

consultation with the SHPO, has determined that no additional archaeological survey is warranted and no survey will be conducted within the JSF Cantonment area for the BRAC undertaking.

- (b) The JSF Cantonment contains one NRHP eligible historic district. The Strategic Air Command (SAC) Historic District, as defined, contains three separate areas consisting of: (1) A "Christmas tree" alert apron; (2) an alert support area that housed squadron operations and intelligence; and, (3) a weapons storage area for the Hound Dog nuclear cruise missile and the Quail decoy missile. The SAC Alert Historic District consists of 20 buildings and structures and two small parking aprons (See map of historic district and a list of buildings and structures, Appendix E). Of these properties, 18 contribute to the NRHP eligibility of the district (contributing) and four do not contribute to its eligibility (noncontributing).

2. Aerial Bombing Ranges

- (a) JSF fighter training will use four existing bombing ranges (Test Areas B-75, C-62, C52E and B-82). Inventory of all intact and safely accessible portions of Test Areas B-82, B-75 and C-62 are complete. Those areas of these ranges that are heavily disturbed or contain unexploded ordnance have not been surveyed for cultural resources. Test Area C-62 has nine archaeological sites, seven of which Eglin AFB has determined, in consultation with SHPO, are not NRHP eligible. Two archaeological sites are potentially eligible for NRHP listing. Test Area C-52E has 25 recorded archaeological sites within it. Eglin AFB has determined, in consultation with SHPO, that 21 of these sites are not NRHP eligible, three are potentially eligible for listing and one is NRHP eligible (List of NRHP eligible and potentially eligible archaeological sites by bombing range, Appendix F).
- (b) Additional survey is needed to complete the identification phase for the JSF bombing ranges in Test Areas C-52E. Eglin AFB shall ensure that all surveys are conducted by a professional meeting the qualification standards in Stipulation V. The surveys will be carried out following the Secretary of the Interior's Standards and Guideline for Archaeology and Historic Preservation, included herein by reference.
- (c) Eglin AFB shall submit survey reports to SHPO for review and shall determine NRHP eligibility of any reported archaeological sites or historic buildings or structures following the procedures for NRHP eligibility determinations in Stipulation III.C above.

3. Air Fields: Eglin Field, Choctaw Field, Duke Field.

- (a) The Air Force will select one of two alternative plans for air field use involving three existing air fields at Eglin AFB: Eglin Field, Choctaw Field and Duke Field. The potential for adverse effect is the same for both alternatives. There are no historic buildings or structures at either Choctaw Field or Duke Field and no effects will occur at these air fields as part of the BRAC undertaking. In addition to the SAC Alert

Historic District, there are three historic districts within Eglin Field. These are the Eglin Field Historic District with 20 contributing properties, the Warehouse Historic District with four contributing properties, and the Marine Operations Historic District with three contributing properties. A fifth historic district, Camp Pinchot Historic District, with 20 contributing properties, is located outside of and separate from Eglin Field (See map of historic districts in relation to Eglin Field Appendix G)

- (b) There are 27 individually eligible historic buildings and structures within the Eglin Field area that are located within both JSF flight training alternatives (See map and list of individually eligible historic properties within Eglin Field Appendix H).

C. Assessment of Effects

The JSF component of the BRAC undertaking will involve demolition, renovation and construction within and adjacent to the SAC Alert Historic District; ground disturbance related to the operational use of the JSF bombing ranges containing NRHP eligible archaeological sites; and potential effects of aircraft noise on historic districts and individually eligible historic buildings and structures within Eglin Field. As such, the characteristics that make multiple historic properties eligible for listing on the NRHP will be altered in ways that diminish their integrity.

1. Cantonment

- (a) Five historic buildings within the SAC Alert Historic District will be demolished: Buildings 1339, 1343, 1345, 1352, and 1353 in Area 2. Demolition of these buildings will adversely affect integrity of design, setting, materials, workmanship and possibly feeling and association.
- (b) Buildings 1315, 1321, 1326, 1328, 1344, in Area 2 will be renovated as part of the proposed development; however, these renovations will be limited to the buildings' interiors and will not adversely affect their character defining features. Therefore, these buildings will not be subject to treatment.
- (c) The undertaking will result in new construction on undeveloped land adjacent to Area 2 and on developed land within, Area 2 of the SAC Alert Historic District. There are no known archaeological sites within the Cantonment APE. Should archaeological deposits be discovered during construction, however, Eglin AFB will follow the provisions for unexpected discoveries in Stipulation VI.

2. Aerial Bombing Ranges

The use of air-to-ground ordinance will result in ground disturbance in areas that are known to contain NRHP eligible or potentially eligible archaeological sites. These actions will adversely affect the integrity of location and materials.

3. Air Fields

- (a) Flight training will result in over-flights of NRHP eligible historic districts and individually eligible buildings and structures in proximity to Eglin Field. Current noise levels at Eglin Field range from 65 to 85 decibels. Aircraft noise in excess of 85 decibels is expected as a result of the BRAC undertaking affecting a larger area within Eglin Field than at present (see map of historic districts and individually eligible buildings at Eglin Field in relation to the projected noise contour zones in Appendix I).
- (b) If increased aircraft noise will result in the abandonment of a building or structure that is either a contributing property to a historic district or is individually eligible, and use of the building is no longer viable thereby threatening loss of its physical integrity, then the undertaking will have an adverse effect.

D. Resolution of Adverse Effects

Eglin AFB shall resolve the adverse effects of the BRAC undertaking on the JSF component following the procedures presented below.

1. Cantonment

- (a) Eglin AFB will resolve the anticipated adverse effects of demolition on buildings 1339, 1343, 1345, 1352, and 1353 in the following manner.
 - (1) Update SHPO-approved site forms for each structure in all three areas of the SAC Alert Historic District.
 - (2) Complete a SHPO-approved Resource Group Form for the district as a whole.
 - (3) Digitally photograph in color all elevations of each building planned for demolition using a digital camera of 5 megapixels or greater resolution. All photographs will meet the Florida Master Site File photographic documentation requirements issued by the SHPO.
 - (4) Compile an electronic copy of the floor plans for each building planned for demolition to be stored on a CD or other suitable archival quality media.
 - (5) Prepare a technical report containing the results of tasks 1-4, as well as a comprehensive history of the SAC Alert program and Eglin's role in the SAC mission.
 - (6) Prepare an educational booklet designed for the general public summarizing the history of the SAC Alert program and Eglin's role in the SAC mission

- (b) As stipulated in Section 8.C. of the 2003 PA, Eglin AFB will, prior to the approval of demolition and in consultation with SHPO, identify and where appropriate salvage any character-defining historic interior or exterior features of the buildings to be demolished, when such salvage is reasonable, feasible and prudent.
 - (c) Once tasks (1) through (3), as described in Stipulation IV.D.1.(a) above, have been completed, Eglin AFB may proceed with the development, as needed. Tasks (4) through (6) shall be completed within 12 months of completing Tasks (1) through (3).
 - (d) All treatment shall be carried out by a professional meeting the qualification standards in Stipulation V.
 - (e) Draft copies of all reports and other documentation prepared pursuant to Stipulation IV.D.1 (a) above will be submitted to SHPO for a 30-day review. If the SHPO does not respond within 30 days, Eglin AFB will assume the SHPO has no objection to the documents as drafted. In completing the draft documents, Eglin AFB will take into account any comments it receives from the SHPO within the 30-day review period. Final copies of all materials will be submitted to the SHPO and the Florida State Archives. Eglin AFB will make available to the public copies of the final report and the educational booklet upon request
2. Bombing Ranges
- (a) All archaeological sites that are either determined NRHP eligible or are potentially eligible to the NRHP shall, whenever possible, be avoided and preserved in place following the avoidance procedures in Stipulation III.E.1 (a) through (c).
 - (b) To ensure that avoidance is achieved in a consistent and coordinated manner, Eglin AFB shall consult with JSF to determine which of the avoidance measures identified in Stipulation III.E.1 are best utilized to achieve avoidance. If some other measure better achieves avoidance for the purpose of JSF use of the bombing ranges, then Eglin AFB, in consultation with SHPO, shall utilize that measure. Eglin AFB shall provide JSF with copies of the maps identifying all avoided sites and buildings, submitted in a form useful to JSF, and will periodically update these maps as needed. A copy of the maps and any updates will also be provided to the SHPO with a description of the avoidance measures used for each historic property. Periodically, Eglin AFB shall brief appropriate JSF staff on the importance of protecting cultural resources, the sensitivity of cultural resources data, and the need to limit access to this data.
 - (c) If avoidance is not possible or desirable, Eglin AFB will, as needed, make a determination of NRHP eligibility in accordance with Stipulation III.C. Any NRHP eligible archaeological site or historic building or structure identified within the bombing ranges that cannot be protected through avoidance will be adversely affected by the undertaking. Eglin AFB shall coordinate with JSF and follow the procedures in Stipulation III.E.2 through III.E.4, as applicable, to resolve the adverse effects

3. Air Fields

If, as a result of increased aircraft noise, Eglin AFB proposes to abandon buildings or structures that either contribute to the NRHP eligibility of the SAC Alert Historic District, the Eglin Field Historic District, the Warehouse Historic District, or the Marine Operations Historic District, or any one of the individually eligible historic buildings or structures, then prior to abandonment, Eglin AFB shall consult with SHPO regarding treatment of adverse effect and may enter into a Memorandum of Agreement for that purpose.

V. Qualifications

Eglin AFB shall ensure that all investigations performed in compliance with the terms of this PA shall be conducted by, or under the supervision of, a person who meets the Secretary of the Interior's Standards and Guidelines for professional qualifications in history, architecture, architectural history, historic architecture or archaeology, as applicable, described in the Federal Register: June 20, 1997 (Volume 62, Number 119, pages 33707-33723).

VI. Unanticipated Discoveries

- A. If a previously unknown archaeological site is discovered during the undertaking, or an unanticipated effect to a known archaeological site, historic building or structure is discovered during the undertaking, then Eglin AFB shall resolve the discovery in the following manner.
 - 1. All disturbance of buildings, structures or ground surfaces, as applicable, in the vicinity of the discovery shall cease and the discovery location will be secured from further harm.
 - 2. A qualified professional, meeting the qualification standards of Stipulation V, shall record the discovery and evaluate its nature, extent, condition, and NRHP eligibility.
 - 3. Eglin AFB shall consult with SHPO on the eligibility of the discovery and the potential effect of continued development within two working days of the discovery.
 - 4. If, in consultation with SHPO, the Eglin AFB determines that the discovery is NRHP eligible and that treatment is warranted, Eglin AFB shall conduct treatment following the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. All treatment will be completed within seven working days of the discovery.

VII. Human Remains

- A. If human remains and associated funerary objects are discovered during the undertaking, Eglin AFB shall resolve the discovery in the following manner.

1. All ground disturbing activity in the vicinity of the discovery shall cease and the discovery location will be secured from further harm until resolved.
2. A professional, meeting the qualification standards of Stipulation V, records the discovery and evaluate its nature, extent, and condition.
3. If Eglin AFB determines the human remains are Native American, it shall consult with appropriate tribe or tribes in accordance with 43 CFR Part 10, the regulations implementing the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. 3001 et seq.).
4. If Eglin AFB determines the human remains are not Native American, or the identity of the human remains is undetermined, Eglin AFB will consult with SHPO and the Florida State Archaeologist pursuant to either 36 CFR Part 800 or the Florida Unmarked Burial Law Chapter 872, Florida Statutes, as applicable, to resolve the discovery. If subsequently, the remains are identified as Native American, Eglin AFB will consult with the tribes pursuant to NAGPRA.

VIII. Emergencies

In the event of an emergency declared by the President of the United States or the Governor of the State of Florida, pursuant to 36 CFR Part 800.12, the following emergency actions are exempted from further consideration under this PA.

- A. Protection of the human health and/or the environment from damage of harm by hydrocarbon or hazardous waste.
- B. Prevention of imminent damage resulting from the threat of hurricane, tornado or other natural disasters.
- C. Stabilization necessitated by the threat of imminent structural failure (e.g. repair of replacement of building footings)
- D. Actions waived from the usual procedures of Section 106 compliance, pursuant to 36 CFR 800.12 (d).

IX. Dispute Resolution

Should any of the signatories object within 30 days to any action implementing this agreement, Eglin AFB will consult with the objecting party to resolve the objection. If Eglin AFB determines that the disagreement cannot be resolved, Eglin AFB will request further comment from the ACHP in accordance with the applicable provisions of 36 CFR Part 800.7. Eglin AFB will, in accordance with 36 CFR Part 800.7 (c) (4), take any ACHP comment into account with reference only to the subject of the dispute. Eglin AFB's responsibility to carry out all actions under this agreement that is not the subject of the dispute will remain unchanged.

X. Amendments

Any signatory to this agreement may request that the agreement be amended, whereupon the other parties will consult to consider such amendment. Where there is no consensus among the signatories, the agreement will remain unchanged.

XI. Termination

Any signatory to this agreement may revoke it upon written notification to the other parties by providing thirty (30) days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, Eglin AFB will comply with 36 CFR Parts 800.3 through 800.6 with regard to individual aspects of the undertaking covered by this agreement.

XII. Biennial Review

Every two years following the execution of this PA, for as long as the PA is in effect, Eglin AFB will meet with the 7SFG(A), JSF, the SHPO and the tribes to evaluate the effectiveness of the PA. At that time, the parties will discuss whether or not the PA is functioning as intended and whether the PA needs to be amended in accordance with Stipulation X to correct and improve its effectiveness.

XIII. Renewal

Every 10 years following the execution of this PA, for as long as the PA is in effect, or unless and until this PA is superseded by another agreement, Eglin AFB will consult with the signatory parties to consider renewal of the PA for another ten year period. The PA will be renewed in its existing form as of the date of the renewal, renewed with amendments or terminated. Renewal shall be indicated by the signatures of all the signatory parties to a new set of signature pages, which Eglin AFB will add to the PA. The old signatures will be left in place. Eglin AFB shall distribute a new copy of the PA with the added signatures to all the signatory parties for their records.

XIV. Execution

Execution and implementation of this agreement evidences that Eglin AFB has satisfied its responsibilities under Section 106 of the NHPA for the Base Realignment and Closure undertaking at Eglin AFB.

EGLIN AIR FORCE BASE

By: 
BRUCE H. MCCLINTOCK, Colonel, USAF
Commander, 96th Air Base Wing

Date: 10 Oct 08

SEVENTH SPECIAL FORCES GROUP (AIRBORNE)

By: 
ANDREW N. MILANI II, Colonel
Chief of Staff, Headquarters, United States Army

Date: 6 Nov 2008

JOINT STRIKE FIGHTER PROGRAM

By: _____
GEORGE ROSS, Colonel
Commander, AETC JSF Program Integration Office

Date: _____

FLORIDA STATE HISTORIC PRESERVATION OFFICER

By: _____
FREDERICK P. GASKE, Florida State Historic Preservation Officer

Date: _____

Concurring Parties:

MICCOSUKEE TRIBE OF INDIANS OF FLORIDA

By: _____

Date: _____

THE SEMINOLE TRIBE OF FLORIDA

By: _____

Date: _____

POARCH BAND OF CREEK INDIANS OF ALABAMA

By: _____

Date: _____

SEVENTH SPECIAL FORCES GROUP (AIRBORNE)

By: _____ Date: _____
ANDREW N. MILANI II, Colonel
Chief of Staff, Headquarters, United States Army

JOINT STRIKE FIGHTER PROGRAM

By: George H Ross III _____ Date: 28 Oct 08
GEORGE ROSS, Colonel
Commander, AETC JSF Program Integration Office

FLORIDA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____
FREDERICK P. GASKE, Florida State Historic Preservation Officer

Concurring Parties:

MICCOSUKEE TRIBE OF INDIANS OF FLORIDA

By: _____ Date: _____

THE SEMINOLE TRIBE OF FLORIDA

By: _____ Date: _____

POARCH BAND OF CREEK INDIANS OF ALABAMA

By: _____ Date: _____

SEVENTH SPECIAL FORCES GROUP (AIRBORNE)

By: _____ Date: _____
ANDREW N. MILANI II, Colonel
Chief of Staff, Headquarters, United States Army

JOINT STRIKE FIGHTER PROGRAM

By: _____ Date: _____
GEORGE ROSS, Colonel
Commander, AETC JSF Program Integration Office

FLORIDA STATE HISTORIC PRESERVATION OFFICER

By: Frederick P. Gaske Date: 10/30/08
FREDERICK P. GASKE, Florida State Historic Preservation Officer

Concurring Parties:

MICCOSUKEE TRIBE OF INDIANS OF FLORIDA

By: _____ Date: _____

THE SEMINOLE TRIBE OF FLORIDA

By: _____ Date: _____

POARCH BAND OF CREEK INDIANS OF ALABAMA

By: _____ Date: _____

MUSKOGEE (CREEK) NATION OF OKLAHOMA

By: _____ Date: _____

SAC MEMORIAL PROJECTBy: Ron Resh Date: 10/27/08

References

Eglin Air Force Base

- 2003 “Programmatic Agreement Between the Air Armament Center, Eglin Air Force Base, the Advisory Council on Historic Preservation and The Florida State Historic Preservation Officer Regarding the Preservation and Protection of Historic and Archaeological Resources Located at Eglin Air Force Base, Florida,” executed February 14, 2003. Document on file at Eglin Air Force Base, Florida.

Eglin Air Force Base

- 2006 “Eglin Air Force Base Integrated Cultural Resources Management Plan Implementation, Eglin AFB, Okaloosa, Santa Rosa and Walton Counties, Florida.” Manuscript on file at Eglin Air Force Base, Florida. Final, February, 2006.

Thomas, Prentice M. Jr., and L. Janice Campbell (editors)

- 1993 “Eglin Air Force Base Historic Preservation Plan: Technical Synthesis of Cultural Resources Investigations at Eglin, Santa Rosa, Okaloosa and Walton Counties, Florida,” New World Research, Inc., Report of Investigations 192. Report on file at Eglin Air Force Base, Florida.

Appendices

- A: Map showing vicinity of Eglin AFB, Florida
- B: Map showing the APE for the 7SFG(A) component of the BRAC undertaking
- C: List of archaeological sites and buildings located within the 7SFG (A) APE that have been determined to be NRHP eligible or potentially eligible
- D: Map showing the APE for the JSF component of the BRAC undertaking
- E: Map of SAC Alert Historic District and list of contributing buildings and structures
- F: List of archaeological sites located within the JSF bombing ranges that have been determined to be NRHP eligible or potentially eligible.
- G: Map of historic districts in relation to Eglin Field
- H: Map and list of historic properties within Eglin Field that are individually NRHP eligible
- I: Map of historic districts and individually eligible historic properties at Eglin Field in relation to projected decibel contour zones

Appendix E
Biological Assessment and USFWS Consultation



**DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 96TH TEST WING (AFMC)
EGLIN AIR FORCE BASE FLORIDA**

Mr. Thomas L. Chavers
Chief, Environmental Assets
96th CEG/CEIEA
501 De Leon Street, Suite 101
Eglin AFB FL 32542-5133

MAY 15 2014

Dr. Donald Imm
U.S. Fish and Wildlife Service
1601 Balboa Avenue
Panama City FL 32405

Dear Dr. Imm:

The following information is being submitted to fulfill requirements under Section 7 of the Endangered Species Act (ESA). This Biological Assessment (BA) addresses potential impacts from mission activities at the C-52 Complex on Eglin Air Force Base (AFB) (Figure 1). Federally protected species analyzed in this BA include the red-cockaded woodpecker (RCW), Okaloosa darter, and eastern indigo snake. This consultation also considers the gopher tortoise.

Proposed Action

The Proposed Action is the implementation of all current and anticipated C-52 Complex operations, as well as periods of mission surge. Operations would be implemented at a mission surge level only during wartime or other significant military involvement. During all other times, C-52 Complex operations are anticipated to be conducted at the baseline level. This BA does not address air operations conducted in the airspace over the C-52 Complex; such air operations are addressed in the BA prepared for Eglin AFB Overland Air Operations. However, this BA does address air operation expendables that impact the C-52 Complex, such as bombs, missiles, gunnery ammunition, chaff, and flares released during air-to-surface testing and training conducted over the C-52 Complex.

C-52 operations include testing, training, and other mission activities (Table 1). Testing Operations are conducted to test new, improved, or existing mission-related hardware, software, or tactics. Training Operations are conducted to increase or maintain the proficiency of personnel to perform specific mission functions. The "Other" category includes Civil Engineering-Explosive Ordnance operations and Smoke Week events. Extensive lists of the expendables for the C-52 Complex are available in the *C-52 Complex Range Environmental Assessment*.

Table 1. Test, Training, and Other Operations on the C-52 Complex

Operation	Category	Description	Primary Location(s)
Testing	Air-to-Surface Missiles/Bombs	Involves firing live or inert missiles/bombs from aircraft at designated targets or impact areas.	C-52C and C-52N
	Air-to-Surface Guns	Involves firing live gun ammunition from aircraft at designated targets. Flares and chaff may also be released from aircraft.	C-52N (and on C-52C to a lesser extent)
	Electronic Countermeasures (ECM) and Electronic Systems	ECM testing evaluates aircraft's self-protection system against "lock-on" from electronic tracking systems. Electronic systems testing includes testing of radar software, radios, and other electronic systems (except ECM). Flares and chaff may be released from aircraft.	C-52C (and on C-52N to a lesser extent)
	Surface-to-Air	Involves directing lasers from the ground at aircraft to determine if the laser degrades the performance capabilities of the aircraft's targeting systems for precision guided munitions. No expendables are released.	C-52A
	Ground	Primarily involves the Seeker Test and Evaluation Facility (STEF), which contains a 300-foot tower used for signature measurement testing of targets. During seeker/sensor tests at the STEF, targets are placed on a turntable at the base of the tower and various seeker/sensor systems characterize the targets' infrared, millimeter wave, and radar signals. Smokes/obscurants may be used during these tests. Ground testing is also conducted at the Long Range Ballistics Test Facility, which is used for ground aircraft gun testing.	C-52A
Training	Air-to-Surface Bombs/Guns	Includes aircraft firing of gun ammunition (including small arms ammunition from helicopters) and release of live and inert bombs, flares, and chaff.	C-52N
	Electronic Countermeasures	Similar to ECM testing, but is conducted for training purposes. Flares and chaff may be released from aircraft.	C-52C and C-52N
	Ground	NAVSCOLEOD provides training to students on techniques for rendering explosive devices safe. This training involves open detonations at designated sites. 7 SFG(A) ground training involves the use of small arms, mortars, and grenades, as well as ground maneuvering exercises conducted by troops on foot (use of vehicles during ground maneuvering exercises is limited).	NAVSCOLEOD: C-52N, C-52W. 7SFG(A): C-52C, C-52E
Other	Smoke Week	Involves testing of man-made and natural obscurants on electro-optical devices. Smoke Week ¹ events were conducted on an annual basis during the 1990s, but since then only one test was conducted in 2005.	C-52A
	CE-EOD	96 th Civil Engineer Group conducts open detonations at a designated site for disposal of out-of-date or damaged munitions and waste explosives. CE-EOD operations are neither testing nor training, but do result in the release of expendables on the C-52 Complex.	C-52N

¹Smoke Week included in the "Other" category since it is a special testing operation that is not conducted on a regular basis. 7SFG (A) = 7th Special Forces Group (Airborne); CE-EOD = Civil Engineer-Explosive Ordnance Disposal; ECM = Electronic Countermeasures; NAVSCOLEOD = Naval School Explosive Ordnance Disposal; STEF = Seeker Test and Evaluation Facility

Biological Information

Three federally listed species (Table 2) may occur within or adjacent to TA C-52 (Figure 2). The gopher tortoise was also considered.

Table 2. Federally Listed Species Within or Adjacent to Test Area C-52

Common Name	Scientific Name	Federal Status
Red-cockaded woodpecker	<i>Picoides borealis</i>	Endangered
Okaloosa darter	<i>Etheostoma okaloosae</i>	Threatened
Eastern indigo snake	<i>Drymarchon couperi</i>	Threatened

Federally-Listed Species

Red-cockaded Woodpecker

The RCW (*Picoides borealis*) is listed as a state and federally endangered bird species. The RCW excavates cavities in live longleaf pine trees that are at least 85 years old. Due to the preservation of continuous longleaf pine forests on Eglin, the Eglin Range has one of the largest remaining populations of RCWs in the country. In 2003, the USFWS identified Eglin AFB as 1 of 13 primary core populations for the RCW (U.S. Air Force, 2013). In 2009, the RCW population on Eglin reached the designated recovery goal of 350 Potential Breeding Groups (PBGs) and re-consultation was completed for future management of the species. In addition to the goal of 350 PBGs, Natural Resources personnel have developed a long-term goal of 450 PBGs in order to allow for more mission flexibility. The Core Conservation Area includes the area required to reach the long-term population goal of 450 PBGs.

Eglin maintains GIS location information for active RCW cavity trees, and RCW foraging habitat around active clusters of RCW cavities. The Eglin RCW population is divided into the eastern subpopulation, which comprises all clusters east of Highway 85, and the western subpopulation, which is comprised of all clusters west of Highway 85. The two populations are demographically separate and each subpopulation is in a different state of health. The western subpopulation is large and increasing (342 PBGs in 2013); the eastern subpopulation is smaller, but appears to be increasing (90 PBGs in 2013) (Figure 3). Active RCW cavity trees are located primarily in the northern part of C-52E and along the northern and northeastern boundaries of C-52N (Figure 2).

High-quality RCW forage habitat consists of open pine stands with tree diameter at breast height (dbh) averaging 10 inches (in) and larger. While 100 acres of mature pine is sufficient for some groups, birds commonly forage over several hundred acres where habitat conditions are not ideal. Depending on site productivity, different amounts of foraging habitat are required. Natural Resources has determined that Eglin RCW groups utilize large areas for foraging habitat,

thus Eglin generally manages for 300 acres per cluster with the allowance of 30 percent overlap with surrounding clusters.

General population recommendations for good quality foraging habitat include 18 or more stems per acre that are greater than 60 years in age and greater than 14 in dbh. Site conditions at Eglin are generally poor; the result is that longleaf pine tends to have smaller dbhs and lower densities than much of the rest of the RCW's range. Good quality foraging habitat on Eglin is defined as habitat that contains between 19 and 33 stems per acre of pines that are greater than 10 in dbh. Another requirement for good quality habitat is that it contains forbs and bunchgrasses in the understory, and has sparse or no hardwood midstory.

Eglin has developed an independent Oracle-based GIS tool (model) that creates foraging habitat assessments, allowing Eglin to consistently and accurately estimate the available foraging resources without sampling the entire Reservation (U.S. Air Force, 2013). The USFWS completed ESA Section 7 consultation on the model in June 2003, and concurred with Eglin Natural Resources findings of "not likely to adversely affect." Research has demonstrated that foraging analyses such as Eglin's model accurately portray the actual territories of RCW groups (Convery and Walters, 2004).

Okaloosa Darter

The Okaloosa darter (*Etheostoma okaloosae*) is a small state and federally threatened fish. Spawning occurs from March to October, with the greatest amount of activity taking place during April. The entire global population of this species is found in the tributaries and main channels of Toms, Turkey, Mill, Swift, East Turkey, and Rocky Creeks, which drain into two bayous of Choctawhatchee Bay. These seepage streams have persistent discharge of clear, sand-filtered water through sandy channels, woody debris, and vegetation beds. The Eglin Range contains 90 percent of the 457-square kilometer (176 square mile) drainage area. On the C-52 Complex, Okaloosa darter streams are located in the northern part of C-52N and throughout C-52W (Figure 2).

Eglin AFB is protecting in-stream flows and historical habitat through management plans, conservation agreements, easements, and/or acquisitions; is implementing an effective habitat restoration program to control erosion from roads, clay pits, and open ranges; is demonstrating that the Okaloosa darter population is stable or increasing and that the range of the Okaloosa darter has not decreased at all historical monitoring sites; and is seeing that no foreseeable threats exist that would impact the survival of the species.

Eastern Indigo Snake

The eastern indigo snake (*Drymarchon couperi*) is listed as a federal and state threatened species, and is the largest non-venomous snake in North America. The primary reason for its listing is population decline resulting from habitat loss and fragmentation. Movement along travel corridors between seasonal habitats exposes the snake to danger from increased contact with humans. Indigo snakes frequently utilize gopher tortoise burrows and the burrows of others species for over-wintering. The snake frequents flatwoods, hammocks, stream bottoms, riparian thickets, and high ground with well-drained, sandy soils. The indigo snake could occur

anywhere on the Eglin Range because it uses such a wide variety of habitats. The species is extremely uncommon on the Eglin Range, with the sighting of only 29 indigo snakes throughout the Eglin Range from 1956 to 1999, and no reported sightings since 1999 (U.S. Air Force, 2013). Most of these snakes were seen crossing roads or after being killed by vehicles. It is difficult to determine a precise number or even estimate of the number of these snakes due to the secretive nature of this species.

Other Species Considered

Gopher Tortoise

The gopher tortoise (*Gopherus polyphemus*) is a state threatened species, and a federal candidate species (in Florida). A 2011 Federal Register notice documented the 12-month finding on a petition to list the gopher tortoise as threatened in the eastern portion of its range (east of the Mobile and Tombigbee Rivers). The review found that the listing of the gopher tortoise is warranted; however, listing is currently precluded by higher priority actions, and a proposed rule to list the gopher tortoise will be developed as priorities allow. In December 2008, all Department of Defense entities, as well as state agencies and other non-governmental organizations, signed a Candidate Conservation Agreement with the USFWS. This agreement defines what each agency will voluntarily do to conserve the gopher tortoise and its habitat.

The gopher tortoise is found primarily within the sandhills and open grassland ecological associations on the Eglin Range, where it excavates a tunnel-like burrow for shelter from climatic extremes and refuge from predators. The primary features of good tortoise habitat are well-drained sandy soils, open canopy with plenty of sunlight, and abundant food plants (forbs and grasses). Prescribed fire is often employed to maintain these conditions. Portions of C-52A, C-52C, and C-52N where regular mowing occurs also provide favorable conditions for gopher tortoises. Nesting occurs during May and June and hatching occurs from August through September. Gopher tortoise burrows serve as important habitat for many species, including the federally listed eastern indigo snake.

Determination of Impacts

This section analyzes potential impacts from mission activities on the C-52 Complex, and identifies methods to reduce negative impacts to protected species. Impact assessments were made with the understanding that Conservation Measures within this BA will be implemented as part of the Proposed Action.

Federally Listed Species

Red-cockaded Woodpecker

RCWs may be affected by C-52 Complex activities in the form of noise harassment, direct impacts, and habitat modification (due to wildfires). The *Red-cockaded Woodpecker Programmatic Biological Opinion* (PBO) (USFWS, 2013) established a process to evaluate potential impacts to RCWs and determine restrictions for Eglin mission activities. Potential

impacts from TA C-52 operations will be covered under the *RCW PBO*. Operations at TA C-52 will be conducted in accordance with Conservation Measures and Terms and Conditions from the *RCW PBO*. TA C-52 operational requirements are summarized in the Conservation Measures portion of this BA.

Okaloosa Darter

Operations on the C-52 Complex may cause direct impacts or habitat degradation for the Okaloosa darter from ground training, pyrotechnics/munitions use, and mission-caused wildfire suppression activities. The potential for impacts from runoff is low due to the restriction on off-road driving, digging, and pyrotechnics use within 200 feet of Okaloosa darter streams and the restriction on land clearing and target establishment within 300 feet of darter streams. Additionally, fog oil would not be used within 500 meters of Okaloosa darter streams. If any munitions land in darter streams, users would contact Eglin Natural Resources prior to attempted retrieval.

Heavy equipment used during mission-caused wildfire suppression, in or near streams, may impact Okaloosa darters. Avoidance of buffer areas around darter streams would minimize the potential for hydrologic modification and vegetative damage from wildfire control efforts. Within these biologically sensitive areas (Figure 4), plows are not used off range roads for fire suppression except in extreme conditions. For any damage caused during emergency situations, Eglin Natural Resources would submit an incident report detailing suppression and rehabilitation activities to the USFWS.

With the implementation of conservation measures, TA C-52 operations may affect, but are **not likely to adversely affect** the Okaloosa darter.

Eastern Indigo Snake

Ground training, pyrotechnics/ordnance use, and heavy suppression equipment used during mission-caused wildfires may impact the indigo snake due to direct impacts, harassment, and habitat degradation. However, the potential for an indigo snake to be struck by a munition is very low, and vehicles are restricted to existing roads and areas specifically designated/authorized for off-road vehicle use. Vehicle/equipment operators would be directed to allow indigo snakes to leave the area before resuming activities. Additionally, personnel would avoid gopher tortoise burrows where indigo snakes may be found by 25 feet. Prior to land clearing activities or establishment of a new target, personnel must contact Eglin Natural Resources for a gopher tortoise/indigo snake survey. Any indigo snakes located during surveys would be relocated in accordance with the *Eglin Indigo Snake Programmatic Biological Opinion* (USFWS, 2009,).

With the implementation of conservation measures, TA C-52 operations may affect, but are **not likely to adversely affect** the eastern indigo snake.

Other Species Considered

Gopher Tortoise

Ground training, pyrotechnics/ordnance use, and wildfires caused by these activities may impact the gopher tortoise and its burrow due to direct impacts, harassment, and habitat degradation. The gopher tortoise may be directly impacted by ground maneuvers, ordnance, or by heavy equipment used during fire suppression. However, the potential for a tortoise to be struck by a munition is very low, and vehicles are restricted to existing roads and areas specifically designated/authorized for off-road vehicle use. Vehicle/equipment operators would be directed to avoid burrows and to allow gopher tortoises to leave the area before resuming activities. If a tortoise burrow is found in an area where operations could not avoid the burrow by 25 ft, the tortoise would be relocated in accordance with Florida Fish and Wildlife Conservation Commission (FWC) protocols. Additionally, prior to any clearing or establishment of new targets, a gopher tortoise survey must be completed; mission personnel must contact Eglin Natural Resources to arrange the survey and any necessary relocation.

With the implementation of conservation measures, impacts from TA C-52 operations would not be significant to the gopher tortoise.

Conservation Measures

The Conservation Measures of this Test Area C-52 Section 7 Consultation are commitments made by Eglin AFB as part of the Proposed Action. Proponents are responsible for ensuring these Conservation Measures are implemented. If Eglin AFB (1) fails to assume and assure implementation of the Conservation Measures or (2) fails to require the participants in TA C-52 operations to adhere to the Conservation Measures through enforceable terms, the protective coverage of section 7(o)(2) of the ESA may lapse, and may result in penalties, fines, and immediate operational shut-down of TA C-52 operations.

The proponent will implement the following Conservation Measures as part of the Proposed Action to minimize or offset potential adverse impacts.

General

- Ensure that all mission personnel are provided with restrictions regarding protected species [i.e., Range Standard Operating Procedures (RSOP) briefing], including maps when necessary.
- Eglin will follow protocols detailed in the latest USFWS-approved INRMP regarding wildfire protection measures for sensitive species and habitats.
- Follow the requirements identified in EAFBI 13-212, *Range Planning and Operations* for wildfire prevention, reporting, and suppression procedures.

RCW

- Per the *RCW Programmatic Biological Opinion*, annually consider potential impacts to RCW from TA C-52 operations, and follow pertinent requirements (summarized below):

- Follow *Management Guidelines for the RCW on Army Installations* (U.S. Army, 2007), unless prior approval has been given by the Chief of Natural Resources.
- Check the fire danger rating daily, and follow the Eglin Wildfire Specific Action Guide restrictions for pyrotechnics use by class day (Table 3).
- Immediately notify the Joint Test & Training Operations Control Center (JTTOCC) and Eglin Fire Dispatch of any wildfire observed.
- Cutting of RCW cavity trees or any longleaf pine tree is prohibited without prior written authorization from the Chief of Natural Resources.
- Coordinate with Natural Resources prior to land clearing or target establishment and follow all construction-related requirements in the *RCW PBO*.
- Coordinate with Natural Resources regarding any necessary pre/post-surveys prior to activities that may harass the RCW.
- Berms will be constructed to collect ammunition or shrapnel for missions that may impact active RCW cavity trees or foraging habitat.
- Do not establish new high impact activities within 500 feet of active RCW trees, (i.e., helicopter landing zones), without prior written authorization from the Chief of Natural Resources.
- Per AFI 32-7064, Eglin must ensure adequate personnel and resources are available for addressing mission started wildfires.

Table 3. Eglin AFB Wildfire Specific Action Guide Restrictions Pertinent to TA C-52 Operations

Fire Danger Rating	Restrictions
Low	No restrictions on missions.
Moderate	No restrictions on pyrotechnics. Post a fire watch for at least 20 minutes after completing use of pyrotechnics.
High	Use caution with pyrotechnics. Post a fire watch for at least 30 minutes after completing use of pyrotechnics.
Very High	Restrict pyrotechnics to hand-thrown simulators or smoke grenades. NO FLARES below 1000 AGL. Use simulators or grenades only on roads or in pits. Cleared areas for pyrotechnics should be a minimum of 1.5 times the blast radius.
Extreme	NO PYROTECHNICS allowed without prior approval from Wildland Fire Program Manager or designee.

Okaloosa Darter

- Observe the following buffers for Okaloosa darter streams:
 - No off-road driving, digging, or pyrotechnics use within 200 feet
 - No land clearing or target establishment within 300 feet
 - Do not use fog oil within 500 meters
- If any munitions land in an Okaloosa darter stream, users would contact Eglin Natural Resources prior to attempted retrieval.

- Equipment operators will not use plows off range roads for fire suppression except in extreme conditions within the buffer areas (Figure 4—Suppression Considerations map). For damage caused during emergency situations, Eglin Natural Resources would submit an incident report detailing suppression and rehabilitation activities to the USFWS.

Indigo Snake and Gopher Tortoise

- During fire suppression activities, equipment operators will be directed to avoid gopher tortoises, burrows, and indigo snakes.
- If a gopher tortoise or indigo snake is encountered, allow it to leave the area before resuming activities.
- Prior to any land clearing or establishment of new targets, mission personnel must contact Eglin Natural Resources to coordinate a gopher tortoise/indigo snake survey and any necessary relocation.
- Avoid gopher tortoise burrows by 25 feet. If operations cannot avoid the burrow by 25 ft, the tortoise would be relocated in accordance with FWC protocols.
- Any indigo snakes located during surveys would be relocated in accordance with the *Eglin Indigo Snake Programmatic Biological Opinion* (USFWS, 2009).

Conclusion

Based on analysis of potential direct physical impacts, harassment, and habitat impacts associated with TA C-52 operations, the Okaloosa darter and eastern indigo snake may be affected, but are not likely to be adversely affected by the Proposed Action. Potential impacts to the RCW will be evaluated through the *RCW PBO*. To minimize potential negative effects of TA C-52 operations, Eglin will implement the Conservation Measures listed in this BA, and applicable Terms and Conditions from the *RCW PBO*.

Eglin Natural Resources will notify the USFWS immediately if any actions considered in this BA are modified or if additional information on listed species becomes available, as a re-initiation of consultation may be required. If impacts to listed species occur beyond what has been considered in this assessment, all operations will cease, and the USFWS will be notified. Any modifications or conditions resulting from consultation with the USFWS will be implemented prior to commencement of activities. Eglin Natural Resources believes this fulfills all requirements of the Endangered Species Act, and no further action is necessary.

If you have any questions regarding this letter or any of the proposed activities, please do not hesitate to contact Mr. Jeremy Preston (850) 883-1153, or myself at (850) 882-0143.

Sincerely,



THOMAS L. CHAVERS, GS-13

Attachments: Figures 1-4


INFORMAL CONSULTATION REGARDING
IMPACTS TO FEDERALLY LISTED SPECIES
RESULTING FROM TEST AREA C-52 OPERATIONS, EGLIN AFB

Reviewed by:


Bruce Hagedorn


Supervisory Biologist,
Eglin Natural Resources

5-13-14
Date


Larry Chavers
Chief, Eglin Environmental Assets

5-15-14
Date

USFWS CONCURRENCE:


Project Leader
U.S. Fish and Wildlife Service
Panama City, FL

6-12-14
Date

04EF3000-2014-I-0177
FWS Log No.



Figure 1. Location of Eglin AFB, FL and the C-52 Complex

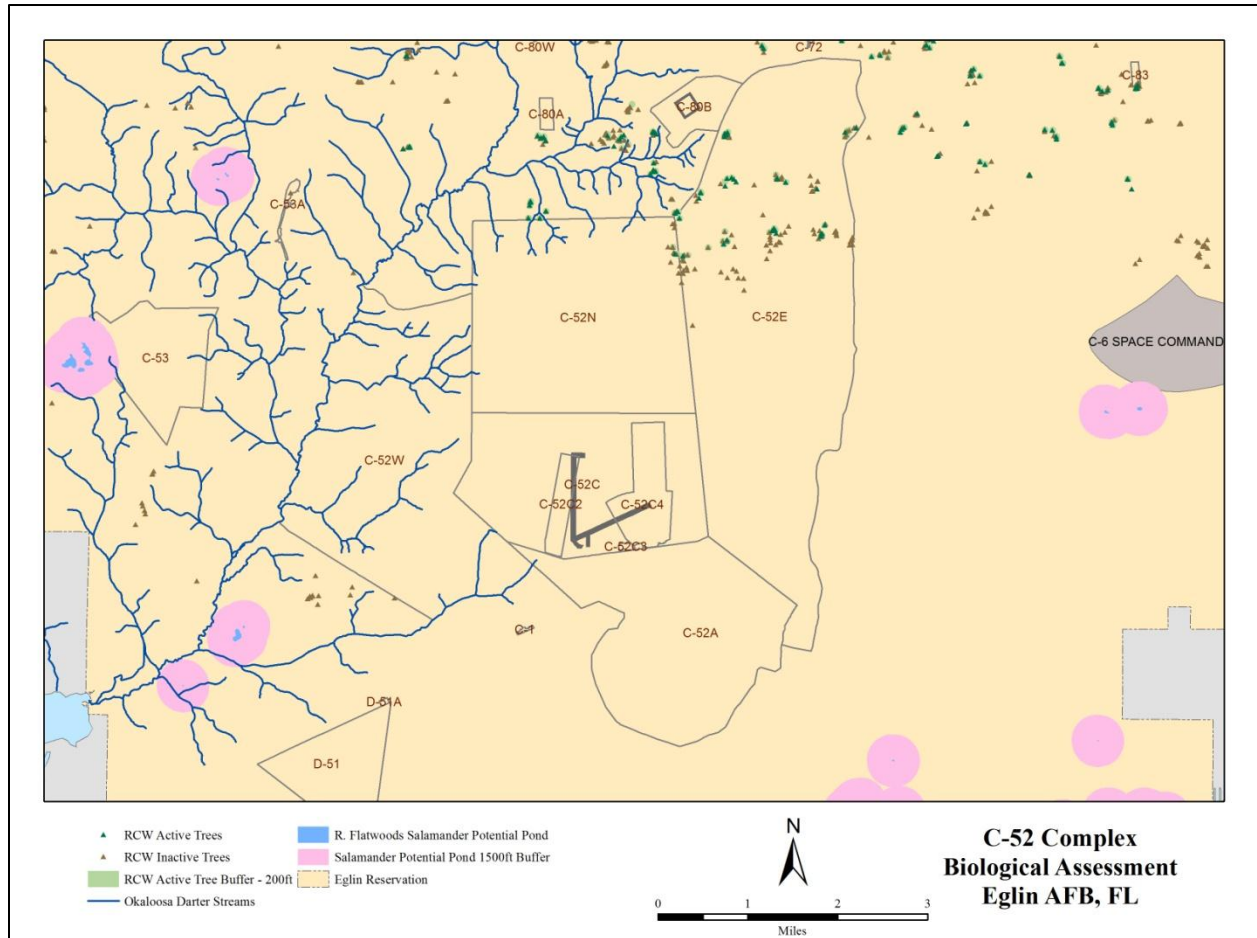


Figure 2. Federally Listed Species Within or Adjacent to Test Area C-52

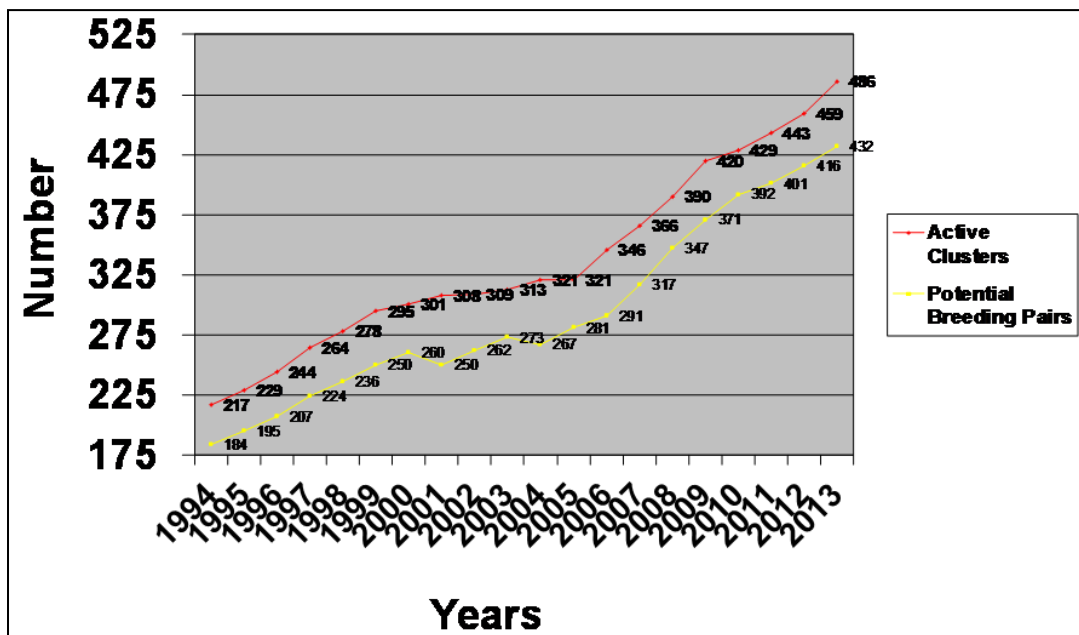


Figure 3. Eglin RCW Population Trends and Goals (1994-2013)

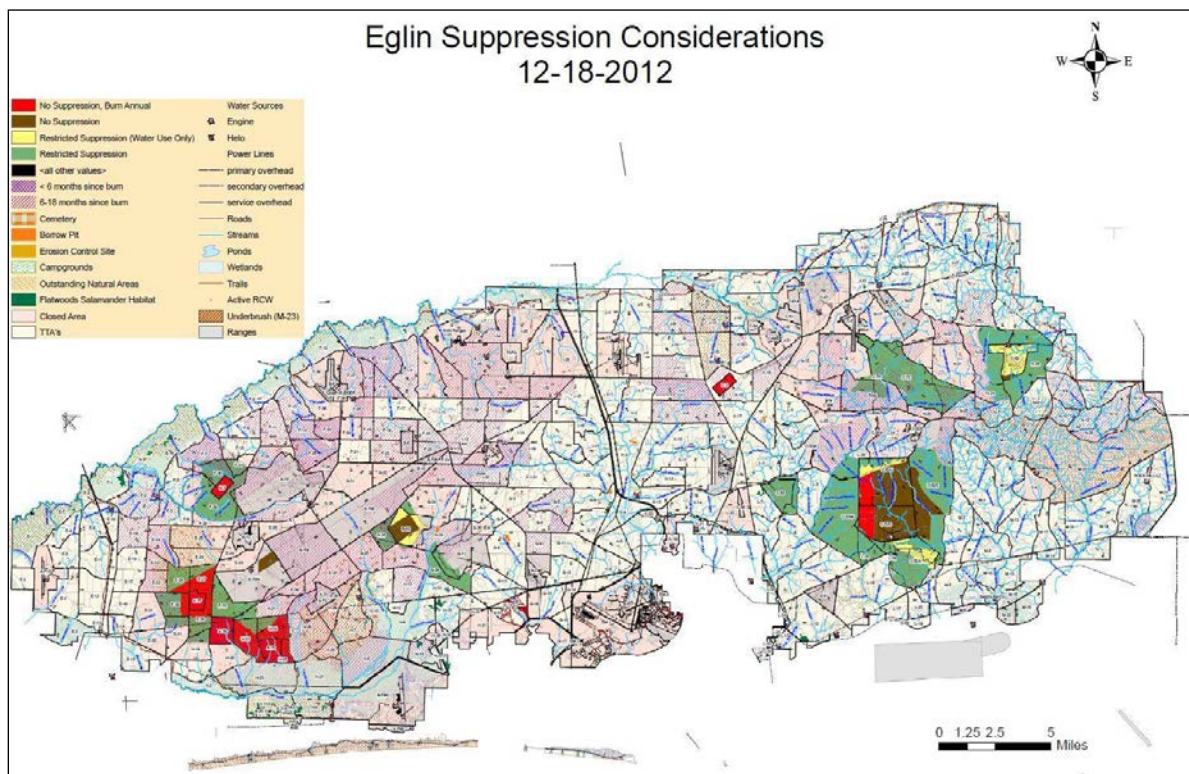


Figure 4. Suppression Consideration Areas for Eglin AFB (NOTE: This is a data snapshot)

References

- Convery, K. M., and J. R. Walters, 2004. *Red-cockaded woodpecker home range and foraging partitions*. Pages 526-535 in R. Costa, and S. J. Daniels, editors. *Red-cockaded woodpecker: road to recovery*.
- U.S. Air Force, 2013. *Threatened and Endangered Species Component Plan to the Integrated Natural Resources Management Plan 2013 Annual Update*. Eglin AFB, Florida.
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- U.S. Fish and Wildlife Service (USFWS), 2009. *Indigo Snake Programmatic Biological Opinion*, Eglin AFB, FL. February.
- USFWS, 2013. *Red-cockaded Woodpecker Programmatic Biological Opinion*, Eglin AFB, FL. August.

-----Original Message-----

From: Lehnhoff, Lisa [mailto:lisa_lehnhoff@fws.gov]

Sent: Tuesday, July 22, 2014 3:18 PM

To: PRESTON, JEREMY R GS-12 USAF AFMC 96 CEG/CEIEA

Cc: KNIGHT, KELLY E CTR USAF AFMC 96 CEG/CEIEA; Kelly, Patricia; HIERS, STEPHANIE D CTR USAF AFMC 96 TW/96 CEG/CEIEA; Catherine Phillips; Grant Webber

Subject: Re: RCW BO

Hey Jeremy,

I spoke with Catherine on Monday about this issue. The Service recognizes that two (2) consultations, C-52 and Overland Air Operations, were completed with the caveat that they would be covered under an Amended RCW Programmatic BO (2013-F-0143) for the NLAA actions.

Due to additional work loads because of staff reductions, the RCW programmatic BO amendment will take a little longer than expected to be completed.

In the event Eglin wished to proceed with either of the two previously mentioned consultations, please be advised that Eglin is covered under the RCW programmatic if all terms and conditions listed in the programmatic are followed.

Please feel free to contact me if you have any questions or comments.

Thanks,

Lisa Lehnhoff
Fish and Wildlife Biologist
USFWS Panama City ES
1601 Balboa Ave.
Panama City, FL 32405
850-769-0552 x.225